



Social Science Research and Conservation Management in the Interior of Borneo

Unravelling past and present interactions
of people and forests

Editors

Cristina Eghenter
Bernard Sellato
G. Simon Devung

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Preface

UNESCO's Programme on Man and the Biosphere (MAB) develops the basis, within the natural and the social sciences, for the sustainable use and conservation of biological diversity, and for the improvement of the relationship between people and their environment globally. The MAB Programme encourages interdisciplinary research, demonstration and training in natural resource management. MAB contributes thus not only to better understanding of the environment, including global change, but to greater involvement of science and scientists in policy development concerning the wise use of biological diversity.

Current and future MAB is focusing on new approaches, such as the Ecosystem Approach adopted by Convention on Biological Diversity (CBD), for facilitating sustainable development. By taking advantage of the transdisciplinary and cross-cultural opportunities of UNESCO's mandate in the fields of education, science, culture and communication. MAB is promoting both scientific research and information gathering, as well as linking with traditional knowledge about resource use. It serves to help implement Agenda 21 and related Conventions, in particular CBD.

During the last three decades UNESCO has supported and collaborated with the Indonesian National MAB Committee in the implementation of the MAB Programme. Establishment of Biosphere Reserves that represent both biological and cultural diversity, expert training and research on interaction between people and forests integrating social and natural sciences in its approach, were among the main past activities. One example was the training course in 1992 at the Kayan Mentarang National Park on research on ecology and conservation covering also ethnobotany and the production of the video films on 'the Last Traditional Potter of Borneo' in 1997. The training and the film production constituted part of the WWF Indonesia project on Culture and Nature Conservation. UNESCO encouraged the publication of *Kebudayaan dan Pelestarian Alam*, an Indonesian version of the book on Culture and Nature Conservation. It is therefore very appropriate for UNESCO to support with CIFOR, WWF, the Ford Foundation and the MacArthur Foundation the publication of the present book on *Social Science Research and Conservation Management in the Interior of Borneo: Unraveling Past and Present Interactions of People and Forests*.

The research approach adopted in the WWF project focusing on the interrelationship between people and the natural environment of the Kayan Mentarang has proved successful for integrating socio-cultural components into conservation management of the National Park. It will be a very valuable reference for those managing Biosphere Reserves and other conservation areas in Indonesia and in Southeast Asia, and contribute to the conservation efforts at a global scale. We congratulate the editors for their excellent work in the preparation of this book and believe this publication will contribute to better integration of social and natural sciences for sustainable management of protected areas.

Ecology-MAB Section, UNESCO Office, Jakarta



Foreword

From the vantage point of early 2003, it is difficult to conjure the intellectual and political atmosphere within which the ideas that eventually led to the Culture & Conservation Program were nurtured. In the late 1980s in Indonesia, the Suharto regime was firmly in control—and indeed was the darling of the international donor community—and all decisions about forest management and nature conservation were centralised in the Ministry of Forestry in Jakarta. Landscapes to be managed for production and those to be managed for protection of nature were demarcated with strict boundaries, at least in official policy and on paper. Discussions about indigenous peoples' resource rights were conducted *sotto voce*, if at all, when representatives of the regime were nearby.

Yet within this confined space, a number of creative individuals coming from very different backgrounds and institutions began imagining a different world. Their intuition told them that there was a confluence of interest between those concerned about threats to the ecological wealth of Indonesia's forests, and those concerned about threats to the cultural diversity and integrity of the peoples who inhabited those forests—threats that included misguided attempts to 'develop' the people and 'protect' the forests, for example, through resettlement.

More specifically, there was an intuition that efforts to document the oral histories and contemporary natural resource management practices of forest-dwelling communities could serve three mutually-reinforcing purposes. First, documentation of the histories of those communities could substantiate their claims to land and resources based on long-term residence and management, especially if accompanied by maps that could compete for legitimacy with those drawn by officials in Jakarta and in provincial capitals. While such claims might not receive a fair hearing in the political climate of 15 years ago, there was a hope that some day, that climate would change.

Second, a better understanding of how forest-dwelling communities had traditionally managed natural resources—and had adapted those systems in response to dynamic pressures over the years—would provide insights into how those systems might be articulated with nature conservation approaches being promoted by various outside interests, in a way that served both community and conservation interests.

Third, translation of the rich cultural heritage of forest-dwelling communities into forms accessible to outsiders would be a scientific, spiritual and aesthetic gift to

the rest of the world. That gift would in turn give voice to the communities themselves, and broaden the constituency for protecting those communities from thoughtless disruption of the social and ecological systems that had generated such cultural riches.

With the 1990s now come and gone, we live in a world in which much of what was once intuition has achieved the status of conventional wisdom. Everyone now 'knows' about the interdependence of ecological and cultural diversity. We all understand the linkages between natural resources management and social justice. We appreciate the value of local knowledge, and mapping techniques are a common arrow in the quiver of strategies to secure recognition of land rights. And the idea of anthropologists and conservationists working together on the same team is hardly novel.

But at the time the Cultural and Conservation Research Program was initiated, these ideas were not yet conventional wisdom. We all owe a debt of gratitude to Bernard Sellato as well as Tim Jessup, Alan Feinstein and other individuals from the World Wide Fund for Nature (WWF) Indonesia and the Ford Foundation who were willing to reach across institutional and disciplinary interests to find common cause. We are also indebted to the many young (Indonesian and foreign) researchers who were willing to take the risk of investing their early careers in a research program of as yet unproven viability, including the Dayak researchers who took upon the task of looking scientifically at their own history and traditions. And we are certainly indebted to the communities in Kayan Mentarang whose welcome and knowledge were essential if the research were to have any meaning at all, whether to scholars or practitioners.

Indeed, an underappreciated value of the Culture & Conservation Program has been its demonstration of the feasibility of the approach and the utility of its outcome, despite the many challenges along the way. It has made a significant contribution to the broad acceptance of the importance of integrating cultural and ecological values in the landscape, and the value of integrating social science research into conservation efforts.

Despite the progress in loosening intellectual constraints, the political urgency of applying these approaches has increased rather than diminished in the intervening years. In the late 1990s, dramatic political and economic dislocations in Indonesia have certainly opened up new opportunities to pursue community-based management of natural resources, but they have also intensified internal and external threats to sustainability. I hope that this English, abridged edition of *Social Science Research and Conservation Management in the Interior of Borneo* inspires a new generation of researchers and practitioners to build on the many insights that have blossomed from a few seeds of intuition when the research effort was first conceived.

Frances Seymour
Washington, D.C.
March 20, 2003

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Angguk Lamis was born in 1953 in Tamiang Layang, Central Kalimantan; after taking a law degree, he now teaches law at Palangkaraya University, Central Kalimantan.

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Cristina Eghenter, born in Trento, Italy, did fieldwork in Apo Kayan (1991-93) and took her Ph.D. in Ecological Anthropology, Rutgers University (1995); she was C&C field director (1995-97) and Community Development Program coordinator on the Kayan Mentarang Project (1996-99). Part of the work on this book was carried out while she was a European Science Foundation fellow at the Centre for South-East Asian Studies, Hull University.

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Bernard Sellato, born in 1951, has been working in and on Borneo for thirty years. He has an M.Sc. in Geology (1973) and a Ph.D. in Anthropology and History (Paris, 1987). He was C&C co-director (1990-1995) and program coordinator (1996-97), and he now heads the Institute of Research on Southeast Asia in Marseilles.

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Some of the contributors could not be contacted regarding an update of their biodata by the time of the completion of the book manuscript. The editors extend their profound apologies to the contributors for erroneous, incomplete, or outdated data.

Acknowledgements

The editors of this volume, in the name of all the participants in the Culture & Conservation (C&C) Program over the course of the years, wish here to extend their heartfelt thanks to all the people of the Kayan Mentarang National Park area and surrounding regions for their hospitality and generosity toward researchers and visitors to their villages, as well as for their invaluable assistance to these visitors' work. No doubt the C&C research would not have been successful, nor the present book have been published, without this assistance and their patience. We all shall keep a lasting and moving memory of this warm, unselfish hospitality that the people of Kalimantan have demonstrated to us whenever we resided with them, and we also wish to extend our profound apologies to them for any blunders and misunderstandings that may have inconvenienced them.

We have been very lucky to benefit from the assistance of so many people that it is now difficult to name them all, and for this, too, we apologise to them. We only shall list here the names of their villages: Apau Ping, Long Berini, Long Kemuat, Long Alango, Long Tebulo, Long Uli, Long Peliran, Long Bena, Long Belaka, Long Pujungan, Long Jelet, Long Pua, Long Apan Baru, Long Nawang, Nawang Baru, Long Temunyat, Long Uro, Lidung Payau, Data Dian, Long Metun, Sungai Anei, Miau Baru, Sajau Metun, Sajau Pura, Kelubir, Naha Aya', Long Peso', Berayang, Mara Satu, Antutan, Teras Baru, Teras Nawang, Jelerai Selor, Long Tunggu, Long Bang, Long Bawan, Long Rungan, Long Layu, Tang La'an, Long Api, Kuala Belawit, Long Midan, Terang Baru, Malinau, Long Loreh, Gong Solok, Paya Seturan, Langap, and Respen Sembuak. We wish to thank very warmly all village heads, customary chiefs, community leaders, village ladies, and the five-year old children who helped collect stone tools under Apau Ping houses.

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It is our hope that this book serves to strengthen feelings of cultural pride and identity among the people of the region. May it help, just a little, the people of Kalimantan fashion for themselves a brighter future. It is also hoped that it will encourage vocations among the local residents, especially community leaders and former research assistants, to investigate and record themselves the wealth of their own cultural and historical heritage. And we would be happy if it draws additional national and international attention to and recognition of Kalimantan cultures.

Finally, we would like to express our profound gratitude to all agencies of the provincial government of East Kalimantan, the district governments of Bulungan, Malinau, and Nunukan, and the many subdistrict governments concerned; the Ministry of Forestry and the Directorate General of PHPA; the Indonesian Institute of Science (LIPI); The Ford Foundation, C&C's friendly, steady, and consistent supporter since 1990, and Alan Feinstein, Frances Seymour, Chip Fay, Mary Zurbuchen, Jennifer Lindsay, Suzanne Siskel, and Philip Yampolsky; UNESCO, Malcolm Hadley (Paris) and Philippe Delanghe and Han Qunli (Jakarta), for their interest in C&C since 1993, then in this book; CIFOR, Carol Colfer, Gideon Suharyanto, Sally Wellesley, Dina Hubudin, Norman Macdonald, Kuswata Kartawinata, and Lini Wollenberg for their support to the publication project and their instrumental role in its realisation; Michael Dove and Tri Nugroho, for their critical evaluation of our work and their precious suggestions; the Yayasan WWF Indonesia and Agus Purnomo, for permission; and DANIDA (Danish International Development Agency).

Executive Summary

This volume presents a selection of the work carried out under the Culture & Conservation Research Program, a program funded by the Ford Foundation as part of the Kayan Mentarang Conservation Project of WWF Indonesia in East Kalimantan, Indonesian Borneo.

It addresses two major methodological and epistemological issues that are currently debated in both academic circles and conservation organisations. Firstly, the role of social science research, and more specifically anthropology, in promoting and protecting the social, cultural, and economic interests of forest-dependent people living at the margins. The program's experience offers a privileged perspective from which to assess the contribution of social science research towards the achievement of the integrated objectives of conservation and social justice. Secondly, the ways in which conservation NGOs have contributed to the creation and maintenance of unproven assumptions concerning the natural environment and indigenous people, and sometimes made those assumptions ready-made formulas for the management of conservation projects.

As the outcome of a unique interdisciplinary engagement in central Borneo that lasted for over six years (1991-97), this volume offers a rare and comprehensive picture of the people and the environment of this region. Based on original ethnographic, ecological, and historical data, the authors make an important contribution to the understanding of past and present interactions between people and forests in the interior of Borneo. While this provides undoubtedly important information about the ways in which people have managed the forests of the interior, the book does not tender ready solutions, nor does it minimise the complex challenges faced in building equitable conservation management programs.

This collection also discloses the reality of a human and research experience, in which fieldwork encounters have enriched both the researchers and communities participating in the exchange. Through publication of the research results, the knowledge generated by and on the peoples of Kalimantan will acquire a new visibility. The field researchers, too, stand to gain deserved recognition in professional and scholarly circles, both nationally and internationally.

The many aspects that have made this program an important methodological and practical experiment are reflected in this volume. The topics cover a wide range of disciplinary interests, transcending traditional headings such as anthropology, geography, archaeology, history, ethnobotany, and linguistics. The work is the result of a fruitful collaboration between outside and local experts, experienced scholars and young professionals, foreign researchers and Indonesian and Dayak scientists, who have all been able to integrate their views and insights to formulate a comprehensive body of knowledge of the interrelationships between natural and human components in the forests of the interior of Borneo over time.

The large number of social science reports makes Kayan Mentarang one of the ethnographically best known protected areas in Southeast Asia. This in itself is a significant achievement. The purpose of this book is not, however, limited to presenting a selection of this important information and data. The research program has also been a challenging process of design, implementation, and collaboration over the years. Moreover, by pointing at the interface between research work and forest management concerns, this book offers some tools for easing the antagonism between applied and scholarly research, and building much needed connections across fields of knowledge. It also prompts reflection upon ways to make social science research more practically, academically, and socially significant.

1.

Introduction

Cristina Eghenter and Bernard Sellato

THE CULTURE AND CONSERVATION RESEARCH PROGRAM

This volume presents a selection of the work carried out under the Culture & Conservation Research Program (henceforth, C&C), a program funded by the Ford Foundation as part of the Kayan Mentarang Conservation Project (KMCP) of WWF Indonesia (WWF-I) in the province of East Kalimantan, Indonesian Borneo.

It addresses two major methodological/epistemological issues that are currently being debated in both academic circles and conservation organisations. Firstly, the book addresses the role of social science research, and more specifically anthropology, in promoting and protecting the social, cultural, and economic interests of forest-dependent people living at the margins (see Brechin *et al.* 2002; Brosius 2001; Brosius, Tsing and Zerner 1998; Headland 1997; Sillitoe 1998; Wilshusen *et al.* 2002). The C&C experience offers a privileged perspective from which to assess the contribution of social science research towards the achievement of the integrated objectives of conservation and social justice. Secondly, we examine the ways in which conservation NGOs have contributed to the creation and maintenance of unproven assumptions concerning the natural environment and the indigenous people, and sometimes made those assumptions ready-made formulas for the management of conservation projects (Chartier and Sellato 1998, 2002; Eghenter 2000a; Persoon and van Est 1998; Zerner 1994).

By being the outcome of a unique interdisciplinary engagement in central Borneo that lasted for over six and a half years (1991-1997), this volume offers readers a rare and comprehensive picture of the people and the environment of this region. Based on much original ethnographic, ecological, and historical data, the dedicated and concerned authors make a rare contribution to the understanding of past and present interactions between people and forests in the interior of Borneo. While this provides undoubtedly important information about the ways in which people have managed the forests of the interior, the book does not tender ready solutions, nor does it minimise the complex challenges faced in building equitable conservation management programs.

This collection also discloses the reality of a human and research experience, in which fieldwork encounters have enriched both the researchers and communities participating in the exchange. By publishing the research results as a book, the knowledge generated by and on the peoples of Kalimantan will acquire a new visibility. The field researchers, too, stand to gain deserved recognition in professional and scholarly circles, both nationally and internationally.

The many aspects that have made the C&C research program an important methodological and practical experiment are reflected in this volume. The topics cover a wide range of disciplinary interests transcending traditional headings such as anthropology, geography, archaeology, history, ethnobotany, and linguistics. The work is the result of a fruitful collaboration between outside and local experts, experienced scholars and young professionals, foreign researchers and Indonesian and Dayak scientists, who have all been able to integrate their views and insights to formulate a comprehensive body of knowledge of the interrelationships between natural and human components in the forests of the interior of Borneo over time.

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C&C in Perspective: Building Stronger Research Strategies

The C&C program originated in a proposal to the Ford Foundation for a project on oral traditions in Kalimantan, and in a subsequent consultancy report (Sellato 1989a, 1990). The project aimed at studying all forms of oral tradition, particularly oral literature, history, and traditional legal systems, with the twofold purpose of documenting a rich corpus of oral literature and helping uphold traditional rights over land and natural resources. Eventually, it was decided to implement this project in conjunction with efforts to develop the management plan for the Kayan Mentarang conservation area (then a nature reserve) by WWF-I (Jessup and Sellato 1990).

From the beginning, the C&C program focused the research on the interconnection between society and the natural environment in and around Kayan Mentarang in order to better understand the modalities of interaction of the communities with the forest around them. The main assumption was that taking into account traditional knowledge would help the planning and management of the nature reserve, and would allow for the elaboration of conservation strategies that are community-based. The success of nature conservation was seen as depending upon the preservation of indigenous cultures and, mostly, the maintenance of traditional practices of land tenure and natural resource management. More specifically, the program set out to: investigate the communities' knowledge and perceptions of, and attitudes toward, the natural environment; identify past and present interactions between people and the forest; demonstrate the existence of practices of land tenure based on traditional legal systems; and train Indonesian, particularly Dayak, researchers in field research techniques. Research activities were

also seen as an important opportunity for motivating local people to lead conservation and development activities in their own communities.

In 1990-1992, the program staged a dozen field studies, carried out by local scholars and students after a period of interdisciplinary training bridging ecology and anthropology, the natural and social sciences. Subsequently (1993-1994), field studies were refocused on three main themes: linguistics and oral literature; land tenure and traditional legal systems; and regional history of societies and the forest, moving from a synchronic to a diachronic approach of the relationship between society and its natural environment. These were carried out by about thirty scholars and students, most of whom were Indonesian, who spent three to six months in the field (Jessup and Sellato 1993; Sellato and Jessup 1994).

In the last phase of the program (1995-1997), the overall scope of the C&C program remained much the same. Nevertheless, specific efforts were made to address the issues highlighted by the program's reviewers (Dove and Tri Nugroho 1994), and aim at an output of research more directly linked to, and better integrated with, the agenda of the KMCP for enhancing conservation awareness, strengthening local institutions, and increasing community participation in the planning for the management of the National Park.

In this context, the C&C research agenda was geared towards the collection of empirical evidence so as to understand how and why people have managed natural and cultural resources, and what conditions had triggered changes in the degree and mode of their practices. Addressing the reviewers' recommendations to investigate changes in traditional management practices as they relate to changes in the context of evolving social and power relations in the communities of the interior, the research was directed at trying to determine changes in indigenous peoples' practices and their social context, and look at the extent to which these practices helped conserve resources or manage the forests to maintain biodiversity (Eghenter 1997). Recruiting and training continued to target Dayak researchers from communities in and around the Kayan Mentarang area who were concerned with both investigating local cultures and enhancing local awareness of social and environmental issues. A small team of core researchers and research assistants was formed.

The Institutional Environment of C&C

A thorough understanding of the history of the C&C program requires looking at the concurrent developments that have taken place in the KMCP and in WWF-I in general. The evolution of strategies reflects reciprocal adjustments and changing forms of collaboration in what often appear as the reversed-growth trajectories of the research program and the conservation project. The following provides a brief overview of how the two projects have coexisted and how the forms of their partnership have shifted through time.

Begun in 1990 as a collaborative effort by WWF-I, the Directorate General of Forest Protection and Nature Conservation (PHPA, now PHKA) of the Ministry of Forestry, and the Indonesian Institute of Sciences (LIPI), KMCP was hardly distinguishable from its C&C component. In the initial years of KMCP's life, its funding, management, and staff were largely drawn from C&C, and the presence and activity in the field were largely those of the C&C staff.

KMCP's long-term goal was the establishment of conservation management and sustainable economic development in the Kayan Mentarang and surrounding areas. With its 1.4 million ha, the Kayan Mentarang conservation area in the far interior of East Kalimantan is the largest protected area of rainforest in Borneo and one of the largest in Southeast Asia. Extensive archaeological remains in the area are witness to a long history of human settlement. Nowadays, about 16 000 Dayak people live in or near the

reserve, depending on swidden agriculture, wet rice farming, hunting, fishing, and collecting forest products to fulfil their subsistence needs. In an effort to find viable solutions for the management of this vast conservation area, KMCP and C&C collaborated in collecting evidence to recommend a change of status for the conservation area from strict nature reserve (*cagar alam*), as it had been gazetted in 1980, to national park (*taman nasional*). While in a nature reserve all human settlements are in principle excluded and human activities illegal, in a national park traditional residents are allowed and their 'traditional use' of natural resources permitted. It was upon the recognition of the local people's dependence on forest resources and entitlement to economic development that negotiations for a change of status were started. The results conveyed by an evaluation team sent by the Ministry of Forestry endorsed WWF-I's recommendation. The conservation area was finally designated as a National Park by a decree of the Ministry of Forestry two years later, in October 1996.

Encouraged by the positive response of PHKA, WWF-I used the concept of an Integrated Conservation and Development Project (ICDP) to develop the management of the Kayan Mentarang conservation area. In projects of this kind, the emphasis is on linking and integrating economic development with biodiversity conservation in protected areas by devising conservation measures with economic incentives for the local population (see Muul 1993, Wells 1995, Wells and Brandon 1992). With funding from the John D. & Catherine T. MacArthur Foundation and the European Commission, the KMCP project adapted the basic ICDP strategy and envisioned new directions and activities on a larger scale. A Geographic Information System (GIS) unit was set up to produce maps based on the interpretation of satellite imagery and field data. The Primary Environmental Care (PEC) program started in 1993, its purpose emphatically focused on advocacy of community rights and environmental awareness. In the meantime, several teams of C&C researchers were spending two to three months in the field for what turned out to be C&C's most intensive and extensive phase of data collection and field activities. By the end of 1994, the KMCP-C&C partnership experienced a pendulum movement: KMCP was now bigger and more articulated, and research activity subsided in terms of its function. Although funds were still being used in new and experimental ways to start community mapping, much of the sense of the value of social science research for the overall KMCP was fading.

In yet another switch of fortunes, a long phase of financial uncertainty started in 1995 for KMCP, affecting its activities in severe ways, while C&C funding from the Ford Foundation continued. It was only at the end of 1996 that KMCP managed to secure important new funding from DANIDA, the Danish International Development Assistance Agency. In the context of a revived KMCP, C&C, now a minor partner again and often viewed as a marginal entity, took the tricky path of trying to build a common ground and work more closely with other KMCP components. C&C's final field and dissemination activities were designed to attend to KMCP's immediate concern to develop a management plan for the national park, which would draw on traditional tenure strategies and support the local people's leading role in the management of their forest and in the sustainable development of their region.

An Overview of the Implementation of C&C

Methodological Approach

Since its inception, the C&C program has based its methodological approach on social science research techniques and the fieldwork experience of the anthropological tradition. Most of the data were collected during two- to three-month periods in the field and, often, repeated visits to the same communities over a period of time. This was especially feasible

for locally recruited researchers. The strategy rested on the commonly shared opinion that one of the strengths of traditional social science research is its long-term commitment to the object and place of study, by means of which research can provide deeper and more thorough insights into local traditions, history, and practices (e.g., Sillitoe 1998, Headland 1997, Spradley 1980). Researchers were given formal training in interview techniques, surveys, and ethno-historical methods, and time was also devoted to discussions on how to develop a research plan and identify key research questions. It was deemed very important that researchers learn how to plan and manage research or a survey, formulate the significant questions to be asked, and envision the complexity of the possible linkages between events or practices and their economic, cultural, social, environmental, and historical circumstances. In addition, rapid demographic and socio-economic surveys were carried out to collect essential baseline data to better assess the overall context of the communities in and around the park.

The research stressed team work and collaboration among the researchers. This was achieved in a variety of ways: common initial training in a range of disciplines; flexible research units of two to three individuals investigating together similar topics in different locations; researchers focusing on distinct topics forming a team sharing the same field location; senior researchers guiding younger ones in joint field expeditions; numerous small-scale workshops in the field; researchers interpreting and writing up data together. The main objectives were to encourage exchange and crosschecking of information among researchers, reinforce the awareness of the degree of interconnectedness of the research topics investigated, and build team membership. Evaluation sessions on the progress made in the research were also based on the participation and input from all the team members. C&C's culture-sensitive researchers and the remarkably open, hospitable, and friendly host communities also created a common 'team' spirit. They established and maintained long-term relations of genuine collaboration and empathy that remained a salient feature of the C&C field experience through the years in and around the Kayan Mentarang area (see Dove and Tri Nugroho 1994).

The research experience of C&C was not, however, narrowly restricted to the use of traditional social science methods. It was under this program that the first experiments with community sketch maps took place, which later became one of KMCP's trademarks (see Peluso 1995, Eghenter 2000b). These maps recorded local people's knowledge and decisions about land and resource use, as well as their claims to those resources. Informants organised in groups of men, women, and young people were directly involved in the collection, analysis, and discussion of data, and in the drawing of the maps (Sirait *et al.* 1994).

The significance of a diachronic perspective has long been praised as an important aspect of understanding human activities and their environmental effects (e.g., Headland 1997; Schrire 1984; Sellato 1994b, 1994c). In the context of the C&C research, the historical contextualisation of people-forest interactions was expected to shed light on circumstances and events that might have important impact on future decisions for the management of the conservation area and the development of the surrounding region. The research perspective emphasised the study of both present and past activities in order to be able to compare events at different points in time and eventually find patterns in the ways in which people had exploited resources and responded to changing social, economic, and environmental circumstances over time.

Products and Achievements

The output of six and a half years of research, training, and dissemination activities includes several products and many achievements. Forty-two research reports were

submitted to KMCP, covering a wide range of topics related to the Dayak communities of the interior—from swidden practices to oral literature, from traditional religions to the exploitation of forest products, from migration history to music and songs. A collection of thirty-six edited reports was released in 1995 as a set of five volumes (Sellato 1995e). Two video films were produced, the first one (1994) in collaboration with the Sejati Foundation ('Dayak and Biodiversity. Cultural Survival and Nature Conservation in Remote Interior Kalimantan'); the second one (1997) was made by Manguin and Sellato and sponsored by UNESCO ('The Last Traditional Potter of Borneo'). Finally, in 1999, a selection of twenty-five reports, abridged and further edited, was published as a large volume in Indonesian, sponsored by the Ford Foundation, UNESCO, and WWF (Eghenter and Sellato 1999).

The importance of human resource development, particularly of local people, has been emphasised since C&C's beginnings. Priority was given to recruiting and training Dayak researchers, initially from all over Kalimantan, then more specifically from the communities in and around the Kayan Mentarang National Park. The leading expectation was that members of the communities, by becoming active participants in the research program, could better clarify the scope and importance of in-depth, long-term studies to record local knowledge of the environment and traditional practices of management. In this way, they could also trigger the communities' interest in conducting their own documentation of their culture and history. Moreover, researchers were expected to become tomorrow's spokespersons for their communities and lead them in conservation and development initiatives for the management of the National Park. More than twenty-five community representatives were trained under the C&C program. Some of them moved on to become KMCP staff shortly after training. Others continued their involvement in research and later took on other positions within KMCP.

An opportunity was offered to about 15 C&C researchers to present their findings in scholarly forums through their participation in three successive international conferences of the Borneo Research Council, respectively in Kota Kinabalu (Sabah, 1992), Pontianak (West Kalimantan, Indonesia, 1994), and Bandar Seri Begawan (Brunei Darussalam, 1996). For most of the Dayak researchers, it was their first time ever to be part of and interact with the international scientific community at large.

Sustaining C&C's Legacy

As rightly pointed out by the reviewers of the C&C program (Dove and Tri Nugroho 1994), one of the consequences of field activities was the emergence of village-level curiosity about, and interest in, the research findings that could be exploited to help local communities develop plans to protect their biological and cultural resources. A similar concern motivated the promoters of C&C to start initiatives to further encourage the dissemination and 'socialisation' of research activities, and thus sustain the legacy of the C&C program. The Kalimantan Resource Center (KRC) was established in collaboration with a Jakarta-based organisation, the Foundation for Research and Development in Borneo (YPPB). It was intended to provide local communities and other stakeholders with useful information to enable them to take the lead in the long-term goal of the protection of the culture(s) and nature of Kalimantan. The objectives of the KRC included the creation of a library; the publication and dissemination of articles and books based on the results of field activities; the publications of papers to target scientific audiences and decision makers in both the government and private sectors; and the organisation of

promotional activities including exhibitions, thematic workshops, and networks with research institutions, local NGOs, and government agencies.

The transition of the KRC from a C&C unit to an independent nongovernmental organisation was formally sanctioned in 2000. The process has not been easy and has been marred by difficulties, mainly financial. The bulk of the library collection (some 1400 titles on the nature and cultures of Borneo, probably constituting the largest such library fund in Kalimantan) is currently under the temporary management of the Center for Social Forestry (CSF), Mulawarman University, Samarinda. Meanwhile, other community proposals for documentation have emerged, often stimulated by different, and new, community projects, like ecotourism.

Recognising Indicators of Success

Assessing the value of a research and training program like C&C calls for more than a long list of remarkable products, achievements, and initiatives carried out under its auspices. The interconnectedness of the priorities of the research agenda with those of the management of the conservation area requires that the research output be evaluated in terms of its contribution toward the achievements of KMCP's practical objectives. It is important to look at what themes and issues have emerged most forcefully from the reports, and at what they tell us about local management and practices, environmental knowledge, and people-forest interactions. It is necessary to assess whether the social science research that has been conducted under C&C has improved our understanding of the local context and ensured useful results for KMCP.

The geographical scope of the C&C research program covered the entire conservation area. Most early activities, however, focused on one area, the Pujungan subdistrict (*kecamatan*), regarded as a strategic area from several points of view. Its central position with regard to the National Park suggests that it will become the core area for the implementation of the management plan and the monitoring of the park. The existing number of archaeological remains and the diverse Dayak subgroups point to the significance of the area in understanding the history of Dayak people and their settlement of this and other parts of the interior. Contrary to areas like Apau Kayan and Krayan, the Pujungan subdistrict is also more easily accessible by river, which makes it the natural entrance point to the National Park.

Highlights from the Field

The chapters in this volume—a narrow selection from the original research reports—highlight the main attitudes and traditions in forest management among the people living in and around the Kayan Mentarang conservation area.

First, it was established that the communities are still what is usually called 'traditional communities' (*masyarakat adat*), largely regulated by customary law in the conduct of their daily affairs and the management of natural resources (chapter by Jacobus Frans). This was a major point made with regard to both KMCP's long-term goals of involving these communities in conservation efforts and seeking official recognition for claims on traditional land and resources. The role of traditional institutions, presently reflected in institutions like the customary council (*lembaga adat*) and the customary chief (*kepala adat*), is key to understanding the communities' views of rights and the way they deliberate on issues of forest management and social responsibilities.

Several chapters point to various aspects of what is usually referred to as an 'indigenous management system,' or the ability of local people to use, alter, regulate, and restore land and other natural resources in their environment. With a distinct emphasis, Bahari describes the stages of traditional swidden farming in the upper Bahau area and shows how farmers make their decisions on the basis of criteria rooted in their long experience of local environmental conditions (chapter by Herculanus Bahari Sindju). Adding to the growing body of literature on the environmentally sustainable function of shifting cultivation in tropical forests under stable conditions (e.g., Brookfield *et al.* 1995; Dove 1985a, 1988a; Colfer 1993; Conklin 1957; Jessup 1981), this research provides important evidence that local people's agricultural practices are not intrinsically destructive of the environment but rather draw on knowledge and understanding of the dynamics of that environment.

The role of the forest as provider of goods that can be eaten or used in various other ways, as well as traded out, is socially and legally reinforced by the concept that the forest must be protected from overexploitation by individuals from within and, especially, from outside that community. In all the traditional communities along the Pujungan and Bahau rivers, specific regulations exist that restrict access to the forest and regulate the exploitation of its most valuable products (chapters by Blajan Konradus, Simon Devung, Martua Sirait, and Angguk Lamis *et al.*). Reserving part of forest in the village territory for harvesting products when in need or under other specific circumstances is a common strategy adopted also in other communities of the national park, and elsewhere in Borneo (e.g., Wadley *et al.* 1997; Eghenter 2000a).

The wide range of forest plants and crop varieties exploited suggests a high degree of biodiversity that has been managed and intentionally maintained for centuries (chapters by Martua Sirait, and Indah Setyawati). The Dayak are also keen collectors of seeds. The connection between local environmental knowledge and customary regulations also becomes apparent in the discussion of collective and individual rights and practices of forest exploitation (chapters by Angguk Lamis *et al.*, and Simon Devung). As we would expect in all communities, there are episodes of non-adherence to common rules, yet the overall conformity of behaviour indicates a high degree of social cohesion and the community's vital dependence on the forest for its wellbeing (chapter by Simon Devung).

The definitive archaeological and historical evidence of the long presence of Dayak people in the Kayan Mentarang area (chapters by Njau Anau, Liman Lawai, and Karina Arifin and Bernard Sellato) reminds us that these peoples' practices and interactions with the forest also have a long history. Past attitudes toward the environment are reflected in the oral literature (chapter by Yus Ngabut) and the importance of natural resources is embedded in their artistic traditions (chapter by Daniel Lawing). Recent changes and adjustments brought about by new economic opportunities are also depicted (chapter by Blajan Konradus). The recognition of these changes is important in that it contradicts stale formulations and stereotypical views of timeless, backward indigenous people still entertained by government officials, urban residents, and romantic environmentalists. At the same time, the awareness that economic and social changes have taken place cannot prevent us from discerning that traditional management practices still remain in place, while adjustments are being made to suit new circumstances.

The themes highlighted above represent a necessary recapitulation of the scientific contributions of the research program. However, the findings need also be examined with regard to how useful they were in KMCP's development and whether and how they

were (or could be) used to influence decisions and design solutions for the management and economic development of the conservation area.

While this step might seem a logical and obvious one in evaluating a research program created and implemented as part of a conservation project, it is rarely taken, with the result that there is little possibility to assess the effectiveness of the role of social science research in conservation management and sustainable development (see Sillitoe 1998; Brosius 2001). What some of the reasons might be could only be speculated on. The fact that proposals and projects of this kind are only too susceptible to stringent requirements—securing funding, respecting deadlines, fitting predetermined views of what the projects are expected to produce—might just explain the paucity of objective appraisals. The persisting gap between the prevalent ‘academic’ voice of research and the ‘practical’ concerns of field projects might also account for the still scarce instances where results of research succeed in indicating solutions and developing viable alternatives.

The contributions of C&C with regard to making KMCP a more successful project can be assessed at several levels. The training and fieldwork opportunities provided staff with the knowledge of research techniques and the analytical skills that have been brought to bear in the ways these staff successfully fulfil new responsibilities in WWF-I projects and elsewhere. The opportunity to interact with the communities during long stays in the field also enabled them to become more open-minded and gain a better sense of how to encourage community participation.

Findings that Make a Difference

Information collected in the field was instrumental in providing the crucial evidence and formulating the recommendation for the change of status from strict nature reserve to national park. The historical and archaeological data undoubtedly showed that the communities of the park have long been residents of the area and could not be forced out without raising sensitive issues of human rights abuse. Not only have Kenyah, Punan, Saben, Ngorek, and other Dayak communities settled the area for centuries, they have also maintained its forests and developed management systems. The argument that the communities themselves could prove to be the best chance for the sustainable and continued management of the Kayan Mentarang conservation area, particularly the idea that the communities’ actual presence and strong cultural identity could contribute to deterring or minimising the risk of encroachment by outside parties (Sellato 1992a), relies on the interpretation of the research findings.

The extensive documentation on land tenure systems and regulations for the exploitation of forest resources helped bring the issue of customary rights to the attention of government officials in the Bulungan district (*kabupaten*) and the Ministry of Forestry. Future negotiations for the official recognition of traditional systems and regulations like *tana’ ulen* and the definition of their role in the management of the national park will depend on the accuracy and inclusiveness of the research findings. The data collected also provided a basis for structuring and developing a program aimed at strengthening local institutions. The realisation of the prominent role of customary institutions in the management of forest resources requires that these institutions become the privileged interlocutors and partners in planning for the management of the conservation area.

The presence of the researchers in the communities generated village-level discussions on conservation and the future of the area. In some cases, like in the customary territory

of the upper Bahau, the outcome was a resolution to more tightly enforce traditional regulations and exclude outsiders from the exploitation of forest products on village land. Research activities also inspired local interest in documenting historical, cultural, and artistic heritage. So far, this interest was the motive for community representatives to join KMCP and work in the midst of their own communities on behalf of the conservation project. In the future, the conservation of cultural and natural resources in the area will require a role shift whereby community representatives take the lead in the management of the national park on behalf of their communities. Their new roles will draw vitality from a stronger sense of ethnic identity and pride in their cultural heritage.

Challenges to Conservation Management

As mentioned in the section above, the output of C&C's research activities served the conservation management objectives of KMCP in direct ways that, in turn, raised the level of participation in and support for KMCP among local people and government officials.

Research findings, however, also brought to light the multiple aspects and complexities of the social, environmental, political, and historical context within which the viability of KMCP is ultimately tested. Dayak village communities are increasingly heterogeneous in their ethnic and socio-professional composition. This type of information becomes extremely valuable for conservation and development projects when consistently linked to difficulties that may be encountered in the implementation of activities. Limited access to information, the resilience of stereotyped views, and preference for quick results might encourage park managers to regard forest-dwelling communities as homogeneous entities in relatively uncomplicated situations, and to adopt common solutions for the whole conservation area. Although this might be easier and less time consuming, the chances of success are slim, insofar as they rest on the incongruity of the project's views with the reality of the communities (see Dove 1992). On the contrary, acknowledging the complexity and diversity of the social and economic context will lead to designing flexible and locally appropriate measures of conservation, and thus ultimately will enhance the project's sustainability in the long term.

Several of the C&C reports focusing on history point to the reality of overlapping territorial claims caused by long histories of migrations. Recent experiences with KMCP's community mapping underscored the need to take into consideration historical factors before finalising territorial maps and settling boundary issues between old and new settlements. Similarly, the initial focus on the interactions between people and forest inside the conservation area proved too narrow when research findings indicated the significant impact of people who had moved out of the park area but go back for the purpose of collecting forest products. The line between insiders and outsiders thus becomes inevitably blurred.

Communities of the interior are part of far-reaching trade networks in forest products such as eaglewood or incense wood (*gaharu*). The control of the trade might be in the hands of outsiders, but the local people's growing debt with these merchants, as well as their desire to purchase consumer goods and build new houses, leads them to adopt collecting practices that are unsustainable. The presence of large teams of collectors from as far away as Java, Central Kalimantan, and Sulawesi (Celebes) created a situation of competition where customary rules were easily disregarded and considerations for short-term economic gain prevailed. The presence of these outsiders, who sometimes

gain local residency by marrying into the village, brings new social and religious challenges to the communities. Such residents of a different religious denomination and ethnic background, in growing numbers, may embolden themselves to resist rulings by their hosts' customary council and, when convenient, challenge the validity of customary law as conflicting with the national law (Sellato 2001; Eghenter 2000c; Wadley n.d.).

Discriminations that rock the social fabric of the village communities do not, however, always originate from the outside. The customary law is the law of the aristocratic category that has maintained economic and social supremacy, unchallenged until very recently, within Kenyah and Kayan communities. New developments, education, and the Christian faith are eroding the old privileges of the higher strata and providing more opportunities for educated and enterprising individuals to climb to power.

The Pioneering Role of C&C

If the product—i.e., the reports, information, data—elaborated by the C&C program now remains as its most tangible contribution, the mere existence of the program was important for KMCP in other ways. As mentioned earlier, in KMCP's early stages, C&C contributed to its physical establishment and presence by training staff, and providing labour and other resources. In addition, C&C helped establish the name of KMCP, especially with the communities of the park. It was C&C researchers who first visited the communities and explained the idea of a nature reserve. During their stay, researchers took time to discuss the plans for conservation and sustainable development in the area. In many villages, particularly outside the park boundaries, the first and only time KMCP staff visited was on the occasion of C&C research activities. Researchers were often asked to convey to WWF-I the local people's concerns about their rights and the current or potential conflicts with neighbouring or encroaching outside companies.

KMCP's image was largely shaped through the contacts and interactions of C&C researchers. By establishing lasting bonds with the communities, C&C unwittingly found itself in the position of spokesperson for the larger KMCP. In this role, C&C opened the way to other KMCP activities and promoted the gradual embracing by local communities of KMCP's conservation and development objectives (Eghenter 1997).

Lessons from the C&C Experience: Improving the Dialogue between Social Science Research and Conservation Management

Since the 1980s, in conservation and protected area management circles, there has been an increasing emphasis on the need to balance conservation priorities with the development needs of the communities living in and around the conservation area. The neglect of resident people in conservation areas, which had long characterised the approach of governments and organisations alike, was being replaced by the realisation that virtually all wilderness areas had been modified or managed by humans in one way or another. Changes in the criteria for defining protected areas now included the protection of landscapes reflecting a history of human interaction with the environment, as well as the need to maintain the 'traditional' ways of human communities (Pimbert and Pretty 1994). The ecological evidence for the positive impact of traditional human activities in some areas justified the participation of resident communities in the protection, management, and restoration of the environment (Pimbert and Pretty 1994; Headland 1997). The necessity of involving local communities,

however, was less of an absolute technical requirement for the management of the conservation areas than it was contingent upon the consideration of both pragmatic and social justice concerns (see Orlove and Brush 1996; Wells 1995). On the one hand, the realisation that the economic benefit of biodiversity conservation did not, for the most part, reach local people living in and around the conservation area required that other economic incentives be created to reduce local pressure on natural resources and the potential loss of biodiversity (Wells 1995). On the other hand, the recognition of the rightfulness of local peoples' claims to the land, based on a long history of settlement in the protected area, discredited initiatives of strict enforcement of protection measures, such as denying them access to the exploitation of natural resources.

It was also becoming evident that local people, precisely because of their long-term residence in the area, could become assets in management and conservation efforts. They possessed a wealth of knowledge about the natural environment that could be used to design more effective conservation management strategies involving, rather than excluding, local communities. Social science research could play an important role by providing insights into local practices and beliefs, and their wider social and political context. Researchers, particularly anthropologists, have ever since been documenting indigenous knowledge and management systems in wilderness areas to attest to the conservation ethic held by local people and to the sustainability of their traditional practices (e.g., McNeely and Pitt 1985; Poffenberger 1990; Redford and Padoch 1992; Brush and Stabinsky 1995; Padoch and Peluso 1996; Sponsel *et al.* 1996; Wadley *et al.* 1997).

The general outlook of integrated conservation and development projects (or ICDPs, of which KMCP was an adjusted model) more specifically assumes that effective management of natural resources and their sustainable use over time need to incorporate traditional management practices and involve local people from the planning phase on. This approach also stresses the development of buffer zones outside protected areas to reduce pressure on resources within the protected area by providing alternative economic options. The partnership between C&C and KMCP was built upon the recognition that social science can make a significant contribution to the design of conservation and sustainable development strategies. As stated in C&C's last proposal to the Ford Foundation, the activities under the auspices of the C&C program were intended 'to document and support traditional rights of tenure and local resource management, including zonation; to strengthen the ethnic and cultural identity of Dayak people; to provide training and field experience for young scientists from Kalimantan; to contribute to our knowledge of the cultural history and the forest ecology of the region' (Jessup and Sellato 1995). Moreover, it was expected that the results of research activities would enable KMCP to design better management strategies. The research would directly support efforts to manage the conservation area by providing information for designing conservation strategies that involve local communities and maintain indigenous management practices (Sellato 1994a, 1996a; WWF-I and WWF-D 1996).

Reasons for a Research Program

The brief evaluation of the usefulness of the outcome of C&C presented above allows for a re-interpretation of statements contained in the WWF-I proposal in light of what actually happened. While there is little doubt that C&C helped train researchers, contributed to improving our knowledge of the cultural and environmental history of the region, generated local interest in research and other KMCP activities, and

documented forms of local resource management, it remains unclear whether C&C did or did not enable KMCP to design better management strategies. The uncertainty has less to do with the quality of the data collected than with current thinking in many conservation organisations. Wells convincingly argued that several 'unproven and optimistic assumptions' are often made in ICDP projects with regard to biodiversity conservation and sustainable economic development, despite the fact that results have for the most part fallen short of expectations (Wells 1995: 322-323). Similarly, there seems to exist a sequence of causally related assumptions on the 'presumed' key role of local people in sustainable management of protected areas: indigenous people are good conservationists, hence they would make good managers of the conservation area, hence it is important to study them. In these terms, the protected area management's prevailing position of blaming local residents for destroying the environment in the past can easily turn into the opposite, yet equally simplistic position—if unsupported by hard evidence—of praising local residents as the natural managers of biodiversity.

How should a research program fit into this framework? Must it set out to prove that local people are good managers of the environment or, rather, turn such a premise into a working hypothesis that could or could not be borne out in the final results? What lessons can be drawn from the C&C experience?

Research can and should be effectively used as a means to critically question and test key assumptions implicit in the project's objectives. Reflecting on epistemological issues, Dove maintains that social sciences are in a position to address questions transcending boundaries between disciplines by problemising other fields (Dove and Kammen 1997: 99). Then, problemising or questioning premises or unproven assumptions made in the field of biodiversity conservation and sustainable development is a task that research programs like C&C can and must undertake. Such assumptions may have arisen because of political reasons or financial considerations; sometimes, they may be ideas taken for granted and recycled in unassuming ways within the common discourse currently prevailing in conservation circles. According to Ingerson, for example, the view that traditional knowledge and practices of people in a conservation area are keys to the sustainable management of that area might have been encouraged by anthropologists and advocates themselves, who have made use of romanticised notions of forest peoples as defenders of the environment to prompt governments and international foundations to fund projects for the participation of people in protected area management (Ingerson 1997; Conklin and Graham 1995).

By testing the basic assumptions implicit in the project's statements of intent, the research program would be able to provide illuminating evidence on, for example, when and under what circumstances indigenous practices are sustainable. Qualified evidence to the contrary and conflicting findings need not be ignored, but must be carefully appraised by conservation managers in order to modify strategies and make them more effective (see Sponsel 1997). Although the C&C program did not initially set out to test the validity of certain premises professed in KMCP's proposal, successive developments encouraged reflection on how this and future research programs could best fulfil this purpose.

The results of the C&C research preclude making simplistic and sweeping statements in support of regarding local communities as the best possible conservationists. While there is strong evidence of the existence of forms of indigenous forest management and traditional regulation of resource use, there is

also evidence of overexploitation of protected species, motivated by the desire to make economic profits in a competitive situation. The evidence relating to the circumstances and reasons for the existence or absence of sustainable traditional management of the environment is still incomplete. This shortcoming is due primarily to KMCP's inability (or reluctance) to question its own key assumptions in conservation area management and to assign to the research program the task of testing them (see Sellato 1999). The absence of a clear, 'assumptions testing' agenda for the research program *ipso facto* hampered efforts at finding the best possible ways to integrate research in the planning for conservation management.

A Need for Better Connections

Indeed, C&C's research did not go without difficulties. Moreover, ambiguities concerning the criteria and modalities of research in the context of a conservation and development project have arisen throughout the three phases of C&C. These became even more apparent when local communities raised occasional questions concerning the value of research activities and the practical relevance of the results with regard to their immediate needs (Eghenter 1999a).

Difficulties point to a deficient mode of collaboration between research (C&C) and project (KMCP) staff, who failed to develop a common language and framework of reference. While anthropologists and other researchers working in conservation and development projects must ask themselves what (and how) social science research can contribute to conservation, conservation and park management specialists also need to think about how and why they make use of social science studies in order to better meet the needs of a national park and the people in it (Eghenter 1999a). From the planning phase, the C&C experience lacked the concerted efforts that would have resulted in clear objectives for collaboration and reciprocal expectations. After the initial focus on documenting the social, historical, economic, and ecological context of the communities in the conservation area, the C&C research team was often alone in trying to define the research objectives of subsequent phases and formulate hypotheses, with both their field data and KMCP's priorities in mind (see Pelkey 1995).

There was exchange and communication, particularly in the beginning, but this could have been more effectively sustained by means of common discussions, internal evaluation of the usefulness of research findings, and definition of crucial issues in management, in order to open the way for adjustments of research modalities to fit KMCP's priorities and changes in management criteria following the research findings. As a result, some of the research output failed to prove of direct significance to KMCP for the drafting of conservation policies.

At yet another level, improved communication was also played out in language and mode of expression. It is important to point out that some of the reports, although informative, were by and large embedded in a scholarly mode of writing too distant from the practical and analytical emphasis favoured by project managers. This problem is not uncommon. As noted by Sillitoe (1998) in discussing the use of indigenous knowledge, the esoteric accounts of local views conveyed by anthropologists and the scientific language of development and other technical advisors are far apart. Some knowledge of technical issues of conservation and development together with an appropriate research design can dramatically improve the degree of cooperation and understanding between social science researchers and conservation specialists.

The Holistic View of Interdisciplinarity

The co-occurrence and co-dependence of people and forests in this part of interior Kalimantan require that conservation efforts be based on the recognition of the importance of the human as well as natural components of the environment. From the point of view of a research program, this translates into the need for an interdisciplinary approach, whereby issues are investigated from a multiplicity of perspectives and promote a tighter coordination of research components (see Vayda 1997). Sillitoe (1998: 231) contends that 'interdisciplinary work will be central to methodological advances in this development research'. The need to procure results that are relevant to the project and provide integrated solutions to management and development issues requires a research design based on a stronger multidisciplinary and interdisciplinary perspective. Topics need not be guided by traditional disciplinary distinctions but, rather, investigated in ways that explicitly address, although they are not constrained by, the concerns of the project.

For example, research to address the issue of the use of indigenous management practices for the management of the conservation area starts by investigating existing practices of resource use and regulations. It then asks specific questions to determine their relevance and suitability as conservation measures, such as: Has traditional restricted access had a positive effect on the level of biodiversity? Does the practice in place account for the sustainable use of resources or do other economic and demographic factors account for it? Has the practice been socially and economically beneficial to the entire community? The choice of research methods and approaches will depend on criteria of appropriateness and inclusiveness, i.e., the ability to deliver all the relevant evidence to answer the questions at point. In this case, biological surveys, inventories of forest products, analysis of local institutions, and the history of forest practices may all be important to gain an understanding of the biological and social sustainability of indigenous management practices in a national park (see Eghenter 2000a).

The exchange of ideas and open discussion across disciplinary boundaries is often limited by the researchers' fear of having to make concessions on the theoretical and methodological standards of their individual discipline or field, and thus lower the absolute scientific value of their product. This is one of the many problems that often prevent interdisciplinary work from being more than a sound principle and reasonable approach (see Sillitoe 1998).

From its onset, C&C exhibited a clear interdisciplinary aspiration. The research program evolved by pursuing interconnected topics and themes about the complex mosaic of peoples and environment in the interior of Kalimantan. It identified topics for further interdisciplinary research and built on these possibilities within the limits of its strong social science denominator. A better coordination with KMCP's biology conservation side would have promoted the integration of more biological and ecological input to the research plan.

Ironically, it is precisely truly interdisciplinary research that would secure the holistic approach that is so often claimed by the social sciences and the discipline of anthropology in particular. The integration of results from various perspectives, like linguistics and geology, or ethnobotany and history, can further our understanding of local communities as part of their natural, social, and historical environment and make sure that strategies of conservation and sustainable development acknowledge these connections.

The Local Identity of Social Science Research

The Native Social Scientist

Social scientists involved in participatory rural appraisal (PRA) activities insist that one of the contrasting views in PRA and traditional social science research is the active role accorded to local people in the research process. On the one hand, anthropologists and other social science researchers conduct research, for the most part, about local people, and sometimes, on behalf of local people; on the other hand, PRA practitioners claim that 'poor people are creative and capable, and can and should do much of their own investigation, analysis, and planning' (Chambers 1994: 954). What follows from this premise is the resolve to transfer expertise and give local people the opportunity to become researchers in their own right. It does not follow, however, that all the people have or can acquire the skills to become researchers, as it is often implied, nor that they already possess the knowledge of the causes of developmental problems, and the potential solutions (Pelkey 1995).

C&C's efforts to hire and train local researchers proved correct in the sense that it stimulated interest in local cultures and provided young, educated Dayak with an opportunity to know more about their own history and cultural heritage. The experience also exposed the need to expand training sessions with special workshops for improving written communication and style, which would enable Dayak researchers to upgrade their contributions to national and international standards. C&C research activities that initially saw a mix of foreign, Indonesian, and Dayak researchers became towards the end of the program the monopoly of local social scientists, native to the communities that they were now studying. What were the advantages and shortcomings of this strategy?

Sillitoe asserts that employing nationals from the region of the project can prove cost and time efficient, as they would be able to conduct the research more quickly (1998: 235). This is also an important (and attractive) consideration for project planners and managers. The facility with the language and the lack of cultural shock allow the local researchers to immediately focus on key questions of interest to the research. The familiarity with members of their community can also increase acceptance of research and informants' goodwill, and promote support within the community. Employing local researchers has, however, some drawbacks, of which we need to be aware. Sillitoe points to epistemological concerns, such as the elimination of the 'distance' of the researcher, one of the basic tenets of traditional fieldwork. He also argues that subjective factors, such as 'losing face', can constrain the effectiveness of the role of researchers in their own communities. Along similar lines, it is important to note that local researchers face another set of challenges, precisely by being 'insiders' and, thus, socially positioned within their own communities. In the C&C experience, the example of ethno-historical research, more than any other, brought the issue of self-censorship to light. The information on particular events would not be recorded nor discussed because it might have exposed the 'darker' side of the community, or stirred emotions about tragic past events still alive in the community's collective memory. Several attempts at discussing ways to separate the issues of researching from writing and returning results only partially succeeded in convincing some of the staff that their work as researchers did not necessarily undermine their social positions as members of their communities. Moreover, their own informants were also concerned about stories that might reflect unfavourably on other communities. They sometimes chose not to tell the entire story and share their knowledge.

Researchers who are at the same time members of a community have personal interests and carry social responsibilities that might bias the research results or the way they go about doing research. While the research period spent in the community might be just a temporary occupation, social membership of the native social scientist is probably permanent, and the stakes inevitably higher. The recognition of the limits of 'native' researchers requires some adjustments to avoid invalidating the entire research effort. In the C&C experience, team work, frequent stages in the field in different communities, progress evaluation, topic selection, and comparative focus helped local researchers strive for a more objective investigation without affecting their social positions.

With differing levels of awareness, the tendency among social scientists, including native researchers, doing work in conservation areas is to be 'involved in both protected area and agricultural resource conservation as researchers on indigenous knowledge and management, as practitioners in managing conservation programs, and as advocates for indigenous peoples' rights' (Orlove and Brush 1996: 330). This was true of the expectation of both KMCP and C&C with regard to the contribution of local researchers. The moral underpinnings of doing research on sensitive issues like land tenure rights in a country where traditional community rights are still largely unrecognised become part of the research framework. Whereas the combination of research and community advocacy might turn uneasy at times, timing and methodological rigor become of the essence. If, on the one hand, an advocacy campaign being carried out at the same time as social science research can hinder objectivity and bias the scientific results to fit the immediate objectives of the campaign, on the other hand, the impact of an advocacy campaign that builds upon unprejudiced social science research findings can prove more effective in the long term. For example, the eagerness of KMCP's staff, researchers, and activists to prove that traditional management systems were the best model for conservation solutions in the protected area had them overlook the nature of the system and ignore aspects of it that were socially and economically discriminating. Initially, they presented a biased version of the facts to government officials. Years later, KMCP is discussing with local communities alternative solutions of joint management that build on the knowledge of traditional systems but explore other arrangements that can alter past inequities (see Eghenter 2000a).

Devolution and Restitution

As stressed above, the C&C research activities were for the most part conducted by local researchers and scholars. This in itself does not necessarily make a research activity locally valuable or locally based. A program like C&C, built on the premise of using research to help design management and sustainable development strategies for the Kayan Mentarang conservation area, needs to confront questions such as: Are the results available locally? Have communities used them to plan for the future development of their area? Has the research contributed to a better awareness of the significance of preserving cultural and natural resources locally? Are more local people interested in conducting research?

By deciding to return the results of the research to the communities and find ways to better disseminate them, C&C was concerned with creating a local identity for research, which could maintain its legacy and sustain local interest and cultural identity in the long term. Too often, researchers remain blissfully unconcerned about their responsibility with regard to returning the output of their research and/or to the long-

term aftermath of both their activities and presence in the field. There are questions, however, as to the ways and modes of our 'restitutions'. It is important to think in terms of the media selected for returning the information collected, and of their possible effects on the community. Martin poignantly asks whether the written words of a Western literate tradition are necessarily the best mode (1997: 1-2) and the answer is a qualified 'no' when dealing with communities where information exchange is still largely based on oral transmission. However, initiatives like the Kalimantan Resource Center, discussions about community museums, and even published volumes like our 1999 book and the present one provide alternative forms of returning results and making the research legacy more locally and community based.

The Kalimantan Resource Center is expected to become an independent entity managed by local people. When this happens—and we already mentioned the existing difficulties—it will be one case of a successful transition and devolution of responsibilities from an international project to a local nongovernmental organisation. What about this book, our 1999 book, and other texts recently published by the Kalimantan Resource Center? Will anybody in the communities read them? In local social circles, increasingly influenced by the church, government schools, and television, the permanency of a written text is valued, as well as the realisation that this might be the only way traditional knowledge will be transmitted to the younger generations. A book can also become a powerful weapon when dealing with the bureaucratic mindset of government officials, who all too often regard spoken words and oral traditions as transient and short-lived. And it is a book that can also be read outside the local communities, so that local voices can be heard nationally and internationally.

Post Scriptum: An update on important steps towards collaborative management of Kayan Mentarang National Park

When the introduction for the edited volume *Kebudayaan dan Pelestarian Alam* (1999) was written in the summer of 1998, the WWF Kayan Mentarang was still in the midst of lobbying with the Ministry of Forestry for the recognition of indigenous people's rights to manage the park and its resources. The data from the Culture & Conservation Research Program and the community mapping program provided the main evidence that the conservation area was first and foremost a *tanah adat*, lands historically and continuously claimed and managed by the communities. The efforts of the communities, the customary leaders, and WWF to obtain a community-based management for the park had been inexhaustible, yet the goal seemed still so far away, almost unattainable.

In addition to mapping all traditional land, WWF together with the communities and local government had tried to seek recognition for *tana' ulen*, a traditional system of forest management and protection common in Kenyah communities. Although the status of *tana' ulen* has undergone several changes with regard to its meaning and function, the issue of *tana' ulen* remained a way to raise awareness on tenure and management rights of indigenous people in the national park area. Moreover, it proved that local communities had the experience and knowledge to manage the forest sustainably.

Fundamental social and political changes occurred in Indonesia 1998-1999. As part of the reform movement that was triggered by the new political climate, a new Forestry law was issued (UU No 41/1999) and the law on decentralisation and regional autonomy was promulgated (UU No 22/1999). Both laws set a new stage with regard

to both conservation policy and the rights of indigenous communities. The District of Bulungan was also divided into three new districts to reflect the growing population of the area: the new districts of Nunukan, Malinau and Bulungan. Most of the national park now falls into the district of Malinau. Under these circumstances, new models of national park management could be designed to accommodate the aspirations of indigenous people and engage the new districts.

In April 2002, the Ministry of Forestry issued a decree sanctioning the collaborative management for the Kayan Mentarang National Park. Policies concerning the management of the conservation area will be decided by a Policy Board (DPK), which includes representatives of the Central Government (Agency for Forest Protection and Nature Conservation), of the Provincial and District governments, and of the local communities through FoMMA (Alliance of the Indigenous People of the Kayan Mentarang National Park). In many ways, this innovative management model, which is being applied for the first time in Indonesia, responds to an important recommendation based on the findings of the Culture & Conservation Research Program: sustainability of any conservation program is contingent on the degree to which the complexity and diversity of the social and economic context are recognised and flexible and locally appropriate measures of conservation are adopted. The unique circumstances of the Kayan Mentarang National Park are the historical and cultural heritage of the Dayak people who have been living and managing the forest for centuries.

LAND AND PEOPLE: AN INTRODUCTION TO KAYAN MENTARANG

The pages below constitute a brief introductory basis to the set of twelve chapters of this book. Reflecting the research upon which it is based, the chapters mainly focus on the Kenyah people, particularly the Kenyah of Pujungan subdistrict.

Each of these chapters should be viewed as one facet of a complex prism: the prism itself allows for a multidimensional approach to Kenyah society, its modes of interaction with its natural environment, and the history of this interaction; each facet offers insights into one or several interdependent aspects of these questions; and each is illuminated by a number of other facets of the prism. To some extent—and this is, indeed, the way both the research and the present book were conceived—the book should be read in its entirety and no single chapter should be read or used separately from the whole, as none is totally self-explanatory or self-contained as an independent article should be.

Needless to say, this set of chapters does not cover *all* aspects of Kenyah society or its interactions with its environment. For various reasons, certain aspects of Kenyah life—such as fishing or gardening, house building or river navigation—while relevant, are not dealt with in this book. Be it as it is, with its incompleteness and flaws, we believe that the picture offered by this book is significant enough to allow for a better understanding of the current situation, by all parties concerned and for all purposes contemplated.

The Environment

The Kayan Mentarang National Park includes the headwaters of the Kayan and Mentarang rivers and their tributaries, in the Malinau and Nunukan (Bulungan) districts of the province of East Kalimantan, and borders the two Malaysian states of Sarawak and Sabah between 2° N and 4° 30' N (see Figures 1.1 and 1.2). Ranging in elevation from

about 200 m to about 2500 m asl, it contains lowland valleys, montane plateaus (at about 800-1000 m elevation), and steep mountainous massifs shaped from various sedimentary and volcanic formations. The wet tropical climate, with no sharp seasonality, ensures an average annual rainfall of about 4000 mm.

Figure 1.1 The Island of Borneo

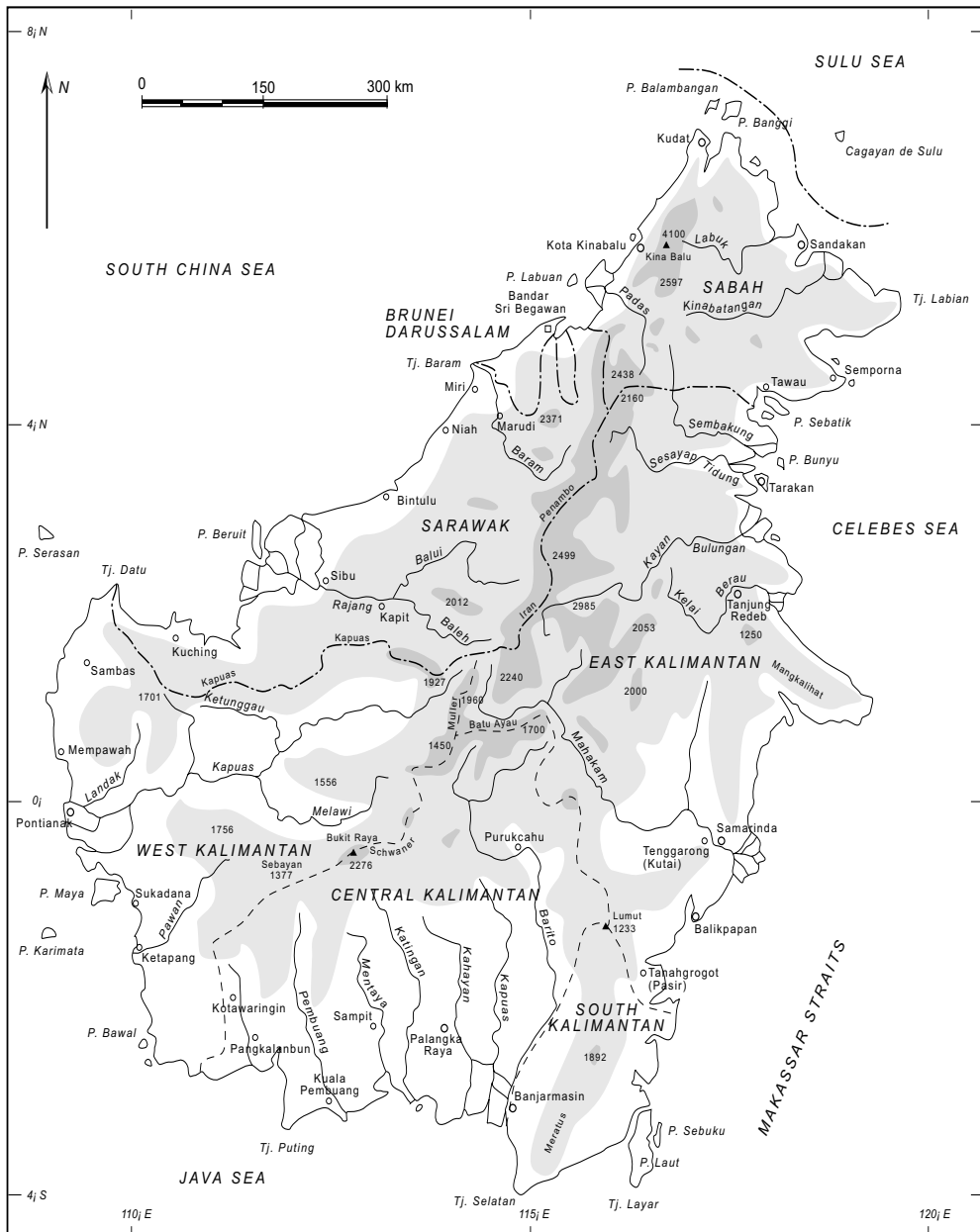
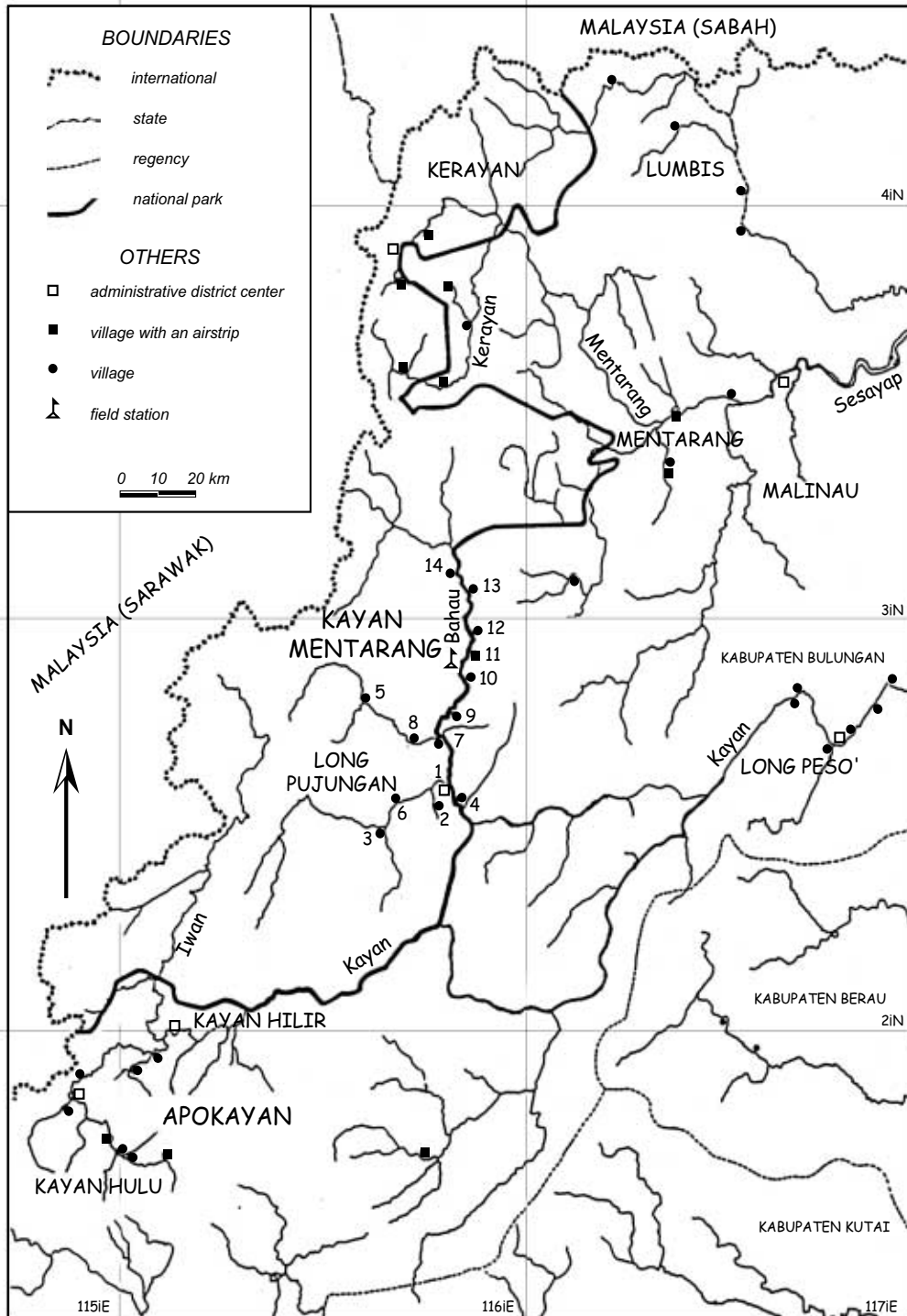


Figure 1.2 Kayan Mentarang and surrounding region



The vegetation is varied, with much variation due to local factors (geologic substratum, slope, microclimates). The main types are the mixed dipterocarp forest (from the lowlands to about 1000 m asl), the Fagaceae-Myrtaceae forest (or 'oak forest'), the Agathis forest, the heath forest (*kerangas*), the sub-montane and montane forest (above 1000 m), as well as confined swamp forest, and a particular moss forest at high altitudes (above 1,500 m). Most, if not all, of these forests have undergone, since long ago, some degree of change due to human interference. Diverse types of 'secondary' forest are present. In fact, there is a continuum in botanical composition and distribution from village space, old swidden fields, and human-made agroforests (the human sphere) to what is usually called climax or 'primary' forest. As it is now commonly acknowledged, local people, through their utilisation of the forest and their management of its resources, actually *made* it what it is.

For the record, the flora reportedly includes about 500 species of orchids and at least twenty-five species of rattan. As for the fauna, it includes about 250 species of birds (recorded), of which seven species of hornbills; and 96 species of mammals (excluding bats), including eight species of primates and various endemic species (Soedjito and Kartawinata 1994; WWF-I 2000; Wulffraat and Samsu 2000).

The Kayan Mentarang forest is rich in products of economic importance, either to the local people or the outside markets, or both. Besides timber (mainly dipterocarps), useful palms are plentiful (rattans and sago), and for over 200 species of plants some local medicinal use has been recorded. While some non-timber forest products, such as eaglewood (incense wood or aloeswood, *gaharu*), resins (*damar*), and illipe nut (*tengkawang*) have long been collected for trade, over 100 species of wild fruits are known as edible by the local people. In one survey, an astonishing 86% of 383 plant taxa recorded were reported to have some use (Puri 1998; see also Puri 2001, Uluk *et al.* 2001, and Wollenberg, *et al.* 2001). This knowledge of forest resources and their uses extends to the fauna: apart from the famous bearded pig (*Sus barbatus*), over 45 animal species are hunted and consumed, and this does not include fish.

Population and Transportation

Kayan Mentarang National Park lies across five subdistricts (*kecamatan*) of the two districts (*kabupaten*) of Malinau and Nunukan (Bulungan), principally Pujungan, Kerayan, and also Kayan Hilir, Mentarang, and Lumbis (see Figure 1.2). In each subdistrict village, the administration, police, and army are represented, elementary and junior high schools are available, and a doctor is in residence at a small hospital (*puskesmas*).

The area within, and in the immediate vicinity of, the park is home to about 16 000 people. In 1997, Pujungan subdistrict had 3106 souls, Kerayan 9000, Kayan Hilir 1364, Mentarang 4995, Lumbis 7382. Population density (per sq. km) ranges from 0.1 (Kayan Hilir) and 0.3 (Pujungan) to about 2.8 (Kerayan and Lumbis). Most of the communities in or near the park are 'traditional' communities or *masyarakat adat*, with populations ranging from 50 to 500 people.

Transportation is mainly by river from coastal towns to Pujungan, Mentarang, and Lumbis, but Kayan Hilir and Kerayan are now only reached by air. Air service also reaches several villages of the upper Bahau River area (Pujungan). Most recently, the Malinau district government has made an agreement with MAF for subsidised flights to all subdistrict villages.

River transport is by powerful longboat along the rivers' middle courses and by small canoe with a long-tail engine (*ketinting*) in their upper reaches, but sudden

changes in water height and river depth, as well as a number of dangerous rapids, considerably hamper navigation. Communication on foot—and now, locally, by motorcycle—is common in Kerayan, where rivers are not navigable. Difficult traditional footpaths across water divides connect the different interior subdistricts.

Ethnic Groups and History

The hinterland region of what used to be Bulungan District and it is now Malinau and Nunukan districts has a long and complex history (see Figure 1.3). The reconstruction offered below remains sketchy, pending a more thorough study of the historical data gathered (see Sellato 2000 for additional discussion).

The Apau Kayan and Bahau-Pujungan regions likely were inhabited by a set of culturally related peoples, which we have called Ngorek. These Ngorek probably were part of a wider ethno-cultural entity including the groups now living in Kerayan and adjacent areas. All these groups are known, throughout the region, for their secondary burial practices and related megalithic monuments. It is fairly possible that they were mainly horticulturalists with a subsistence based on tubers, and with no iron tools, as the presence of stone tools attest (Sellato 1995c).

Presumably in the 17th century or earlier, new groups entered East Kalimantan from Sarawak through the Iwan River. Moving down the Iwan River, they found good lands in the Apau Kayan Plateau. These groups, known as Modang and Kayan, dedicated rice swiddeners mastering the technology of iron, were socially stratified and militarily aggressive.

During the first half of the 18th century, Kenyah groups—probably nomadic groups from Sarawak that had more or less switched to rice farming under their neighbours' influence—moved over into the Iwan (see Whittier 1973, Rousseau 1990). There, they differentiated into a number of named groups, some of which moved down towards the Apau Kayan and others over into the Pujungan River drainage.

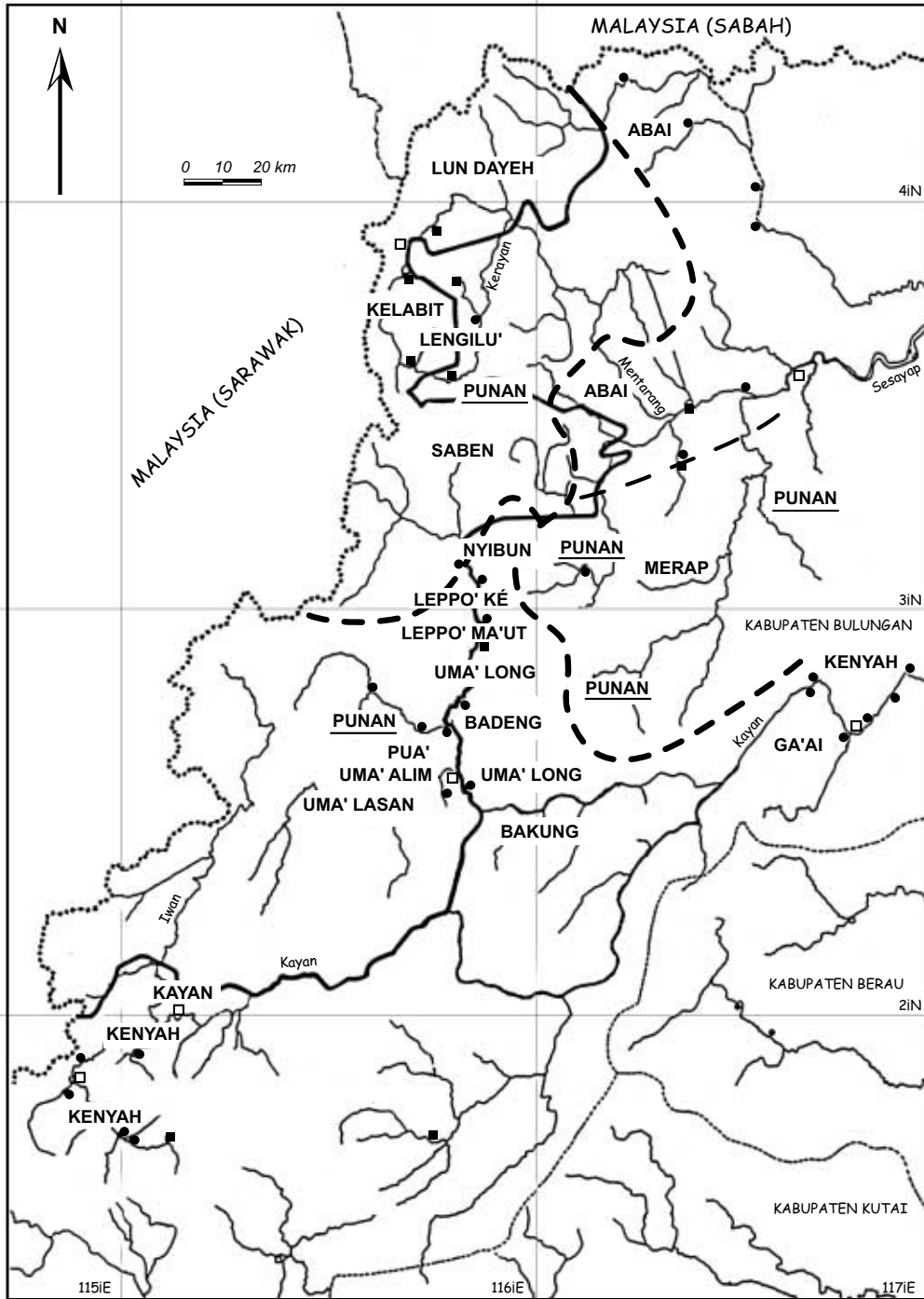
Around the middle of the 18th century, the Kayan and Modang from Apau Kayan and their Kenyah allies massively attacked the Ngorek from the southwest and took over the Pujungan and middle Bahau, enslaving some, vassalising others, and chasing away the rest. Runaway Ngorek groups found refuge on the upper Baram and on the upper reaches of the Bahau.

The second half of the 18th century saw a large-scale split of the Kayan and Modang groups, who started moving out of the Apau Kayan and Bahau areas (only one Kayan group now remains in Apau Kayan) and leaving particular Kenyah groups, like the Leppo' Timai in the Apau Kayan and the Uma' Alim in the Pujungan, in charge of their respective region. The Kenyah soon occupied the vacant territories and pushed away remaining Ngorek groups.

More Kenyah groups, the Leppo' Ké and the Leppo' Ma'ut, moved into the Lurah and, later, overland to the upper Bahau. Those were at war with the Kenyah of the Pujungan River. Ngorek groups scattered away to neighbouring regions, where their descendants still live, most now known under other ethnonyms, like the Merap of the Malinau and the Tembau of the Tubu. Sections of Ngorek populations remaining in the region, like the Pua' and the Nyibun, were culturally assimilated by their successive overlords.

In the course of the following 100 years, more Kenyah groups (e.g., Uma' Kulit and Uma' Baka') moved in and out of the Bahau River system; some, like the Badeng, remained. The Dutch first surveyed the region in 1900–1905 but administrative control

Figure 1.3 Ethnic groups in and around Kayan Mentarang



was only truly achieved around 1925–30, halting warfare and headhunting. Massive migration out of the Apau Kayan and the Bahau started in the 1960s to Sarawak, the Mahakam, the Malinau River, and the coastal regions (see below; and Eghenter 1999b, 2001).

The Kerayan and Mentarang areas are populated by groups now collectively known as Lun Dayeh. These groups probably originated from the region downstream of Malinau town, where they lived close to the Tidung people. These swidden farmers were attacked, presumably in the 17th century, by Moslem sea raiders (Bugis or Tausug), who took control of the local river trade (see Sather 1972). While the Tidung converted to Islam, the Lun Dayeh moved upriver. Some went up the Mentarang River, while others settled the Kerayan Tengah region, and others yet entered the Kerayan Hulu area.

Pressed from the east, the groups of Kerayan Tengah soon spread to the western part of the plateau, then a large lake complex (see LeBar 1970, Schneeberger 1979), and allegedly uninhabited. At some point in the course of their migrations, these groups, later called Lun Baa' ('people of the swamps'), started growing wet rice. Some eventually moved into the Kelabit Plateau of Sarawak, and later to several other river drainages there, but were kept in check by Kayan and Kenyah groups (see Harrisson 1959c). Another group, the Lengilu', lived along the Kerayan River near the limit of Mentarang subdistrict. From there, they entered Kerayan Tengah and Kerayan Hulu.

Part of the groups of the Mentarang moved up the Kerayan, then entered the Kemaloh and the Lutut river drainages (see also Harrisson 1959c, LeBar 1972). Others entered the Kerayan Tengah area, and some probably went as far as Kerayan Hulu. Later, from the Kemaloh, some moved west and into the upper Padas River of Sabah, while others went up the Lutut and across into the Limbang and Trusan rivers of Sarawak.

The Malinau drainage was, in a remote past, inhabited by numerous nomadic bands of Punan and by the powerful Berusu'. The Merap group, fleeing the Bahau, allied with the Punan and took over the whole Malinau River drainage from the Berusu', who withdrew to the Sekatak and Bengalun Rivers. Later on, large groups of Pua' and Kenyah from the Bahau settled in Merap territory, where they are now quite prominent.

The upper Tubu was long the territory of nomadic Punan Tubu groups until runaway Ngorek groups from the Bahau settled there, like the Tembau (or Milau). A large part of the Punan Tubu subsequently took up agriculture, as well as some other cultural features. Some have recently moved into the middle Malinau drainage. In the lower Tubu drainage, as well as in other parts of Mentarang subdistrict and in Lumbis subdistrict, the Tebilun (a.k.a. Abai or Tinggalan), a group affiliated to the Murut family of Sabah, remain the dominant group, although several important communities of upriver Lun Dayeh (from Kerayan and the upper Mentarang) have now settled in the lower Mentarang and near Malinau town.

Languages

In the Pujungan subdistrict and in Apau Kayan, the ethno-linguistic situation is rather uncomplicated. At the time of their first visit, the Dutch (van Walchren 1907, Fischer and Gramberg 1910) found that each village and its precisely, *de jure* bounded territory were home to a distinct, named Kenyah subgroup (e.g., Leppo' Ké, Uma' Alim) speaking a unique isolect referred to by the same name (see Rousseau 1990). As a rule, indeed, each named Kenyah group has a dialect of its own, internally homogeneous

and externally distinctive. Exceptions are Leppu' Nandang, which is giving way to Oma' Long (or Uma Long), and Nyibun, which is becoming extinct. All these dialects are mutually intelligible.

Whereas Blust (1972) included Kenyah languages in a North Sarawak Group, Hudson (1978: 28–32) classified them as a subgroup of his Kayan-Kenyah Group (which also includes the Kayanic subgroup). Early C&C surveys (Sellato 1995b) and later dialectology studies (Soriente 1999) in the Pujungan subdistrict distinguished two groups, one including Leppu' Nandang, Bakung, Leppo' Ma'ut, Leppo' Ké, and Badeng, all closely related to the Leppo' Tau, Leppo' Bem, and Leppo' Tukung dialects of Apau Kayan; and another including Oma' Long, Uma' Alim, and Uma' Lasan. For a more elaborate reconstruction of the history of Kenyah (and Kayan) languages, see Soriente (2002).

From the start, the Pua' and Nyibun isolects were set apart. Pua' is a Kayanic language, related to the Kayan Uma Lekan language of Apau Kayan. As for Nyibun, although it is lexically a Kenyah dialect, its phonology places it in an intermediate position between Kayanic and Kenyah(ic), and close to Kenyah Uma' Timai of the Mahakam and the so-called Leppo' Pu'un isolects of Sarawak.

Non-Kenyah languages include Penan Benalui and Saben. The Penan Benalui (or Menalui) came to the Bahau region from the upper Balui in Sarawak around 1900, following the Kenyah Badeng's migration route. They split into two groups—on the Aran River and on the Lurah—but always remained closely associated with the Badeng. These Penan are generally multilingual. Their language is undergoing rapid assimilation by the Badeng dialect through a situation of bilingualism among the younger generation. The Saben appear to have come from the upper Kerayan around 1800 as two distinct groups: the Saben proper and another group that later split to become known as the Selio' (or Serio') and the Merau Kalun. Among the Pujungan's few remaining Saben (at Apau Ping), only seven are native speakers. Saben is a member of Hudson's Apo Duat Group.

In Kerayan subdistrict, today's extremely perplexing situation reflects a long history of intense ethnic and linguistic interaction related to small-scale and short distance movements, as well as a marked degree of instability of ethno-linguistic entities through time, especially in recent decades. It appears difficult today to elicit clear ethnonyms and isolect names, match them, locate the corresponding actual groups, and retrace their migration histories. Kerayan subdistrict comprises four customary areas, Kerayan Darat in the West, Kerayan Hilir in the North and Northeast, Kerayan Tengah in the East, and Kerayan Hulu in the South (see Sellato 1997c).

All these entities have been labelled Southern Murut or Kelabitic Murut (e.g., LeBar 1972), Lun Dayeh (Crain 1970, 1978), or more recently Lun Bawang (Ipoi 1989). They reportedly number 25 000 in Kalimantan (Kerayan, Mentarang, Lumbis, and Malinau subdistricts), 10 000 in Sarawak, 2000 in Sabah, and less than 1500 in Brunei. All these groups' tongues belong to the Apo Duat Group (Hudson 1978). It was proposed (Sellato, in press 1) to distinguish in Kerayan subdistrict, on the basis of both historical and preliminary linguistic data, four subgroups: Kelabitic, covering Kerayan Darat, the Pa' Padi (River), and part of Kerayan Hulu; Kemaloh, more or less equivalent to Hudson's Sesayap-Trusan subgroup, in Kerayan Hilir and Mentarang subdistrict; Lengilu', in Kerayan Tengah and Kerayan Hulu; and Saben, in Kerayan Hulu. Ongoing linguistic studies, particularly by Beatrice Clayre, are progressively illuminating the situation and are bound to alter the groupings above. A few minor ethno-linguistic entities, such as the Milau and Tembau, still retain an ambiguous status. Finally, one small group (70 people) of formerly nomadic and linguistically unrelated Punan Tubu (from the Tubu River) now lives in Kerayan Hulu.

The Kenyah of Pujungan Subdistrict

Pujungan subdistrict (one of Kalimantan's largest subdistricts, approximately 8500 km²) comprises 21 government-designated villages (*desa*) distributed in 16 locations, of which three are hamlets of precarious permanence (numbers 1 to 14 below refer to Figure 1.2). It should be stressed that the spatial distribution of villages may change at any time, to the effect that the validity of the information in the paragraphs below has only a limited lifetime.

The subdistrict's chief village, Long Pujungan (1) includes two *desa*, Desa Long Pujungan proper, with a population of Kenyah Uma' Alim and Uma' Lasan, and Desa Long Sa'an, a group of Kenyah Oma' Long from the upper Pujungan River.

In the lower course of the Bahau, including the Pujungan and Lurah rivers, the following settlements are found: Long Ketaman (2) is populated by Uma' Alim; Long Jelet (Desa Long Mesahan, 3), by Uma' Lasan. Long Aran (or Long Apan Baru, 4) has a population of Kenyah Bakung recently arrived from the Apau Kayan via the Lurah River. Long Peleran (7) comprises two groups of Kenyah Badeng, of which one came recently from Long Bena', and a small group of Penan. At Long Bena' (5), only a few families of Badeng remain. At Long Uli (9), two groups coexist, the Kenyah Oma' Long and the Kenyah Leppu' Ndang, both from the Lurah area. In the Lurah River, the hamlet of Long Belaka (8) is home to a dozen families of Penan. Another group of Penan, registered as Desa Long Sungai Ma'ut, has unpredictable whereabouts from one year to the next. Yet another group, which used to reside in the upper Aran River but later moved to the main Bahau River near Long Han, is now settled at Long Lame, next to Long Apan Baru. All these Penan groups, known as Penan Benalui, may still be viewed as semi-settled nomads. Finally, a small community of Pua', a non-Kenyah group, still resides at Long Pua' (6), after most of the village's population moved to other regions.

In the upper half of the Bahau River drainage, the village of Apau Ping (14) comprises four *desa*, three of Kenyah Leppo' Ké (Desa Long Lat, Long Pengayan, and Apau Ping proper) and a couple of families of Saben or Berau (Desa Long Tua), a group affiliated to the Lun Dayeh of Kerayan subdistrict.

Part of the Leppo' Ké have moved downstream to Long Tebulo (10), others to the Malinau drainage. Long Alango (11) is a large village of Kenyah Leppo' Ma'ut, and two other *desa*, Long Kemuat (12) and Long Berini (13) are also home to Leppo' Ma'ut communities. Desa Long Aking, now located at Long Berini, is a village of Nyibun, a non-Kenyah group that has long been associated with the Leppo' Ké. Some Nyibun families are also found at Long Kemuat.

Altogether, population figures per ethnic group are, grossly, as follows: Uma' Alim (140), Uma' Lasan (300), Oma' Long (140), Leppu' Ndang (90), Pua' (60), Bakung (340), Leppo' Ma'ut (580), Leppo' Ké (440), Badeng (160), and Nyibun (140). The Penan Benalui, scattered in the Lurah and middle Bahau, now total between 250 and 300, and the Saben, only some 20. These figures, computed from 1993 Subdistrict Office data, may not accurately account for actual resident populations, as scores of registered residents are really living outside the subdistrict (Sellato 1995a). For most of these groups, the people living in the subdistrict are residual populations. Total population dropped from about 10 000 at the turn of the century (Sellato in press 1) to about 7000 in 1965 (Rudes 1965), to the current 3000—in Apau Kayan, it dropped from about 20 000 in 1900 to 12 000 in 1971, to less than 6000 in 1994 (Nieuwenhuis 1904-07, von Franz 1988, Eghenter 1995).

This situation is typical of depopulating upriver regions throughout East Kalimantan in the last few decades (Jessup 1981, Guerreiro and Sellato 1984, Sellato in press).

Outmigration is generally the result of a pursuit of better living conditions, focused on the access to cheaper trade goods and better education and health facilities, but locally the lack of swidden farming land also has been an important factor (Jessup 1981). Large numbers of former Pujungan residents are now found in Malinau subdistrict, in the lower Kayan River region (Long Peso' and Tanjung Palas subdistricts), in the Sajau River drainage, in Berau District, and in the upper Baram River in Sarawak.

The Pujungan subdistrict is divided into two customary areas (*wilayah adat*), one called Wilayah Adat Pujungan, comprising the villages numbered 1 to 9, that is, the Pujungan and Lurah rivers and a large section of the Bahau; and the Wilayah Adat Hulu Bahau, comprising villages 10 to 14, covering the whole upper Bahau drainage. For the former, a customary chief (*kepala adat besar*) resides at Long Pujungan; for the latter, the chief is at Long Alango. Historically, the Uma' Alim were the prominent group in the Pujungan customary area, and the Uma' Lasan, Oma' Long, Leppu' Nandang, Badeng, Bakung, and Pua' were their allies. In the Hulu Bahau, the customary leaders were traditionally from the Leppo' Ma'ut. As for the Penan Benalui, relative newcomers, they were historically, and remain, associated with the Badeng.

Subsistence Activities

Pujungan subdistrict consists almost exclusively of rugged and rather infertile geologic terrain—Cretaceous to Eocene sandstones and claystones, intruded by Miocene basic volcanic rocks locally forming peaks over 2500 m. Rushing streams have cut through the volcanites, leaving plateaus overlooking the valleys. Relatively fertile claystone is scarce except in the upper courses of the Bahau, Lurah, and Pujungan rivers. The Bahau River flows swiftly from about 600 m at Apau Ping to about 200 m at Long Aran.

The Kenyah, now dedicated rice-swiddeners, farm the slopes of the narrow valleys of the Bahau and its main tributaries (on swidden farming in Borneo, see, e.g., Freeman 1955, Chin 1985, Dove 1985a, Colfer 1993). Overall, Kenyah farmers stick to the patches of claystone, which have long been under cultivation. Thirty to 50 varieties of paddy are known, up to 12 of which are sticky rice. Kenyah swiddening (*uma*) makes repeated use of the same plots of land, which are left to fallow over long periods (*bekan* or *jekau*), and very little climax forest (*mba'*) is felled. An average family (five to six persons) farms a 2–4 ha swidden and has been using about 40 ha of land under rotating cultivation in the course of the last two decades. *Ad hoc* or permanent cooperative groups (*senguyun*) start work in May with the clearing of the undergrowth, then the burning of the field (in two stages) in August, followed by sowing, and paddy is harvested in January to March.

Some irrigated rice fields are found, but only four villages seem to have appropriate flat lands, and wet-rice farming, restricted to these narrow areas, is generally carried out alongside swidden farming. How and when some Kenyah groups first learnt swamp farming is not quite clear (see Sellato 1997c), but irrigation and terracing techniques were only introduced to farmers around 1950 (e.g., in Long Alango). Work in the wet fields (*peng* or *mbang*) is scheduled to accommodate the priorities of swidden farming. A field apparently remains under cultivation no longer than three consecutive years and is then left fallow for several years, thus participating in a rotating wet-rice farming system. Recent droughts several years on end probably accounted for a dramatic increase of wet field acreage to reduce the risk of famine in case of failure of the hill-rice crop.

In the upper Bahau, self-sufficiency in food seems to be consistently achieved. This case compares favourably with cases in other regions of Borneo, where at least half of the households cannot meet their needs (e.g., Dove 1993). No reliable data are available on yields in Pujungan, but in Apau Kayan, a figure of over one metric ton per hectare has been put forth (Jessup 1992). The Kenyah, however, still maintain the habit of occasionally mixing boiled taro or cassava with their rice. Taro and cassava, both widely cultivated, may thus play an important role in their self-sufficiency.

Hunting is an important subsistence activity, which takes numerous forms, including unusual ones (Puri 1997). Local patches of grasslands were deliberately maintained by firing for the purpose of hunting deer (Nazir 1997). Until recently restricted to local consumption, meat, particularly of wild boar and deer, has now become a trade product, due to the improvement of river transportation. Fishing is performed in various ways, including the use of different types of nets (thrownet, *jala*; and castnet, *pukat*) and traps. A traditional form of fishing using *tuba* poison, meant to procure important quantities of food for a religious festival and celebration, involve the whole village. The Penan also consume dozens of small animals, usually caught by hand and ranging from palm maggots, locusts, and river snails to crabs, frogs, and lizards.

The Kenyah maintain fruit orchards and vegetable gardens. While cassava and sugarcane are planted either in or around rice swiddens, either during the rice crop or after the harvest, taro is planted in specific damp spots or on dykes around wet paddies. Vegetable gardens are usually located near the village—or even around the house—or near the swidden. Fruit trees are kept near or in the village, as well as in old and current swidden locations. Gardens may include over 100 plant taxa, of which about 40 are trees. Those include fruit trees for home consumption, such as species belonging to the genera *Durio*, *Nephelium*, *Lansium*, *Mangifera*, and *Artocarpus*, as well as cash crops, such as coffee and cocoa. Various species of banana play an important role as food. Some medicinal plants are also grown in gardens. Food gathering, a women's chore, takes place in gardens, but also in secondary forest, where scores of edible plant parts (from about 80 taxa) are collected. Only a few such plant parts are also locally traded in small quantities (e.g., the *bek kay* leaves used as a relish).

The traditional subsistence activities of the Penan Benalui hunter-gatherers include the processing of edible starch, the sago (from several species of palms, principally *Arenga undulatifolia* and *Eugeissona utilis*), which is consumed in a variety of recipes. About 200 plant taxa comprising edible parts—fruit, root or tuber, buds, leaves, shoots—are also used, as well as some ferns and mushrooms. The Penan clean and maintain wild sago palm groves for their recurrent use. In times of famine, the Kenyah also resort to the carbohydrates of wild sago.

Non-timber forest products are collected by Kenyah and Penan alike for local use, as is the case for rattans of various species, and also for trade. Widely traded items include certain species of rattans and eaglewood (*gaharu*; see Sellato 2002, Momberg *et al.* 2000, Wollenberg 2001)). A maritime trade (for instance, with China) in certain forest products goes back at least one millennium, relayed by petty coastal trading polities, such as the kingdom (later, sultanate) of Bulungan or that of Tidung on the Sesayap (Sellato 2001). Cinnamon, a traditional non-timber forest product (NTFP) in the upper Bahau, is now being planted. Local trade used to be controlled by a handful of merchants based in downstream towns, but local traders are increasingly becoming important players at local level as middlemen. The villagers have also been facing much competition from teams of outside NTFP collectors sponsored by traders based in Samarinda, Tanjung Selor, or Tarakan, or by large companies.

Figure 1.4 Secondary forest after swiddening by the Kenyah



Figure 1.5 A Kenyah swidden and field hut



Figure 1.6 A thatched Kenyah field hut by a swidden



Figure 1.7 A few such hanging rattan bridges are still in use



Figure 1.8 A blacksmith at work at the bellows



Kenyah Society

In Pujungan subdistrict, Kenyah society traditionally was stratified into aristocrats (*paren*), commoners (*panyen*), and slaves (*kula'*; see Whittier 1978a; Rousseau 1990). In this system, similar to that of the Kayan and seemingly derived from it, the crucial premise is the *paren's* divine mythical origin and therefore distinct nature, which entails a prevailing stratum endogamy and very low vertical social mobility, occurring through marriage only. In olden times, social ascription was very strict, and commoners—not to mention slaves—belonged to a given *paren* family, who often ruled heavy-handedly and would not allow them to leave the village. Therefore, village endogamy was the norm. High *paren* families, conversely, tended to weave an exogamic regional network of aristocratic alliances with other groups (see Rousseau 1990).

Although the 'ethnographic' situation described above has undergone dramatic changes in recent decades, the Kenyah community to a large extent remains a political, economic, social, and ritual entity (see Rousseau 1990, Sellato 1987). It owns a territory that is jurally defined and precisely bounded through treaties with its neighbours. *Vis-à-vis* these neighbours, the community acts as a political unit under the leadership of its high *paren*. Subsistence economic activities are coordinated at village level, and so, in the past, were trading expeditions (*pesela*). Each and every individual formally (i.e., ritually) belongs to a village (*leppo*'), formerly also to a longhouse (*uma*'), and to a household (*amin*, a stem family, the minimal unit)—all of which are perpetual residential units. Each household has ritual rights and duties and must be represented in village-level religious activities. In all respects, Kenyah communities form bounded entities. However, some degree of fluidity is allowed in the composition of agricultural work groups.

In the past, minor groups under enemy threat had to request protection from a stronger group and accept its tutelage. When a village was defeated in war, its people were divided among the victors' aristocratic families and became their commoners. With the opening of formal relations with the coastal sultanates and, later, the Dutch administration, the then prominent groups were confirmed in their superior position, their high *paren* officially becoming regional leaders.

After Dutch rule abolished slavery, the ruling stratum found itself economically diminished. Then, the Indonesian administration and a massive conversion to Christianity dramatically changed the longhouse social environment. In the modern context, and particularly after the splits and outmigrations that occurred in the 1960s and later, the remaining communities no longer strongly display traditional societal features. Traditional social relations, particularly the stratification system, and family structures have also been heavily influenced and disrupted by education in downstream towns, the search for jobs abroad, and the increased intermingling of villagers with outsiders. To a certain extent, new structures sponsored by the Church have replaced traditional ones.

A 1991 survey (Sellato 1995a) reveals that, while village endogamy remains the norm (75% to 85%), other features have dramatically changed. With the advent of separate houses and neolocal residence, the proportion of stem families is down to between 20% and 40% and the number of individuals per household is down to between 4.4 and 6.8, varying with villages—this suggests an average of about six for the whole subdistrict. The number of children in residence per household is only three or four, with older children abroad at school or working. While uxori-local residence was possibly the norm in the old days of the longhouses and tends to remain dominant in stem families (a young couple lives with the wife's parents), virilocality is now prominent in nuclear families (the couple's house belongs to the husband). Finally, the study suggests that the impact of education should not be overstated: in the sample villages, only between 20% and 40% of the people have received *some* formal primary education, and only 25% of those (i.e., 5% to 10% of the population) ever went on through some secondary education.

A Kenyah family resides partly at its village house, where its social ascription lies, and partly at its farm. Villagers split into several groups for farming activities, each group of families residing near their fields, clustered in a distinct sector of the village's territory, during periods of intensive farm work. Such a group functions as a cooperative unit based on labour exchange (*senguyun*) and its membership, which does not automatically follow village residential ascription or kinship, may change from one

year to the next. In 1993, Apau Ping had five farming groups, with membership ranging from 3 to 13 families who, in olden times, would have lived together in a small longhouse. Other types of collective work groups exist, restricted to particular activities.

Altogether, despite drastic modern alterations, communities in Pujungan subdistrict have remained '*adat* communities', in the sense that they still function under the traditional customary legal system, *adat*, as Jacobus' critical study has established (this volume). While still internally efficient, this system is confronted more and more by the national legal system during intercourse with outsiders, particularly in the context of the management and exploitation of forest resources. New notions of territoriality and communal rights over land and resources have emerged and are now being negotiated with the administration.