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Building Conservation Capacity and Partnerships at Lore Lindu National Park

(Grant No. 497-G-00-99-00004-00)

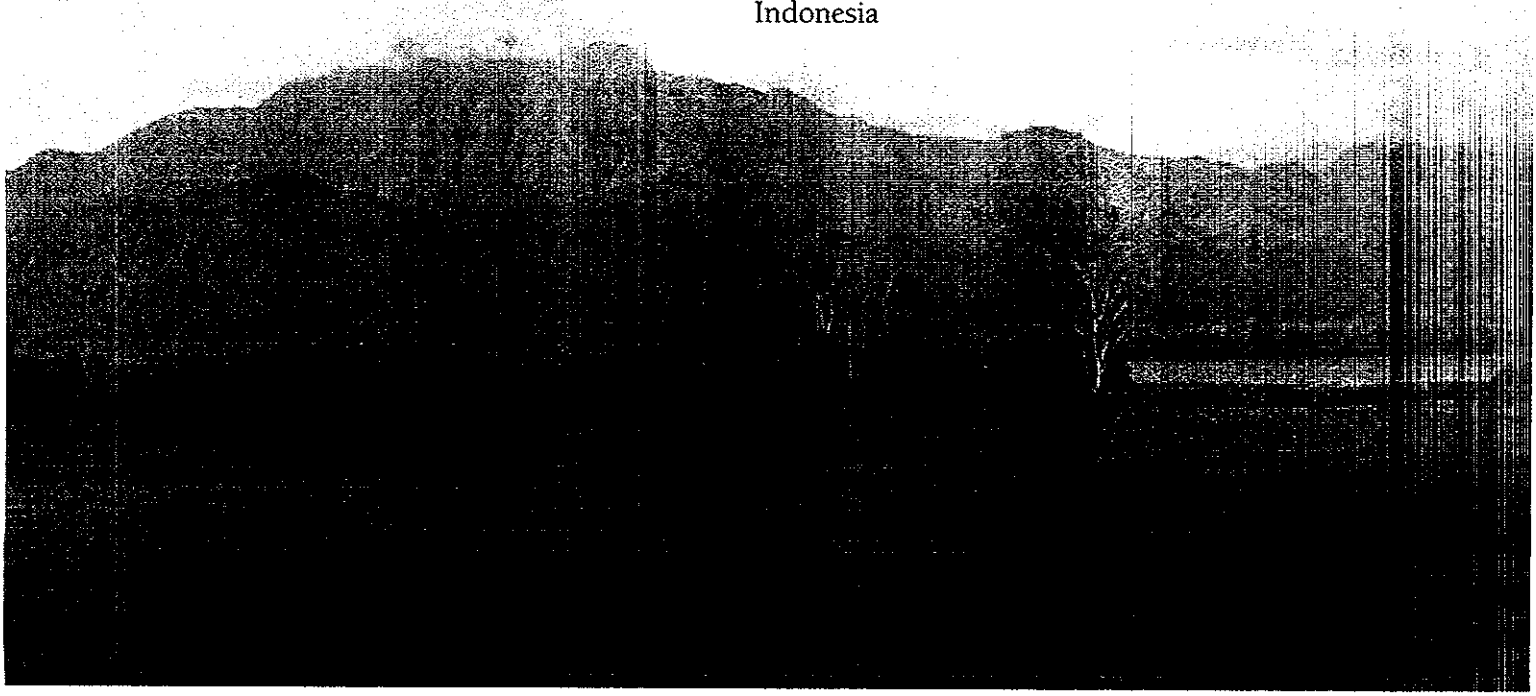
Sixth and Final Report, March 2002

Submitted to the

Natural Resources Management II Program
US Agency for International Development
Jakarta, Indonesia

by:

The Nature Conservancy
Indonesia



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EXECUTIVE SUMMARY

BACKGROUND

Over a thirty-six month period between December 1998 and December 2001, The Nature Conservancy has implemented a USAID grant (No. 497-G-00-99-00004-00) at Lore Lindu National Park. Activities under this grant, entitled "Building Conservation Capacity and Partnerships at Lore Lindu National Park", have involved a range of stakeholders in activities which have enhanced the potential for long term conservation of the Park. This document represents the sixth and final report, which details objectives and activities, findings and outputs, successes and failures, and lessons learned from the implementation process.

PURPOSE

The purpose of the grant was to develop pilot projects and build local skills needed for community based integrated conservation management at Lore Lindu National Park, Central Sulawesi. USAID support for enhancement of National Park management skills, public-private partnerships, and community participation in park management and regional development plans was aimed to parallel the Central Sulawesi Integrated Area Development and Conservation Project (CSIADCP), a project financed by the Government of Indonesia and the Asian Development Bank.

OBJECTIVES

The program lies within NRM II Results Framework with emphasis on Intermediate Results Indicators IR 1/ Institutional Strengthening, IR 2/ Research and Development, IR 3/ Decentralization, IR 4/ Education, and IR 5/ Communication.

METHODS

Throughout implementation of this grant, TNC has adopted the policy of involving other parties as much as possible. All field activities involved members of BTNLL, local NGOs, and community members, and consultations were held at all levels in development of management plans.

One community consultation tool was developed for this grant, the Community Site Conservation Planning tool, and villagers were involved closely in developing Community Conservation Agreements.

The grant was implemented to support CSIADCP programs as far as possible, but there have been numerous occasions where coordination has been difficult.

ACHIEVEMENTS

- The Lore Lindu 25-Year Management Plan has been completed to final draft and is now being reviewed by PHKA;
- Five community conservation agreements have been produced, and a format established to strengthen these agreements through local legislation;
- A GIS Facility has been established and donated to BTNLL, staff have been trained, and ongoing funds located for its management;
- A total of 14 community land use maps have been produced;
- Ecological surveys have established the distribution patterns of birds, small mammals, large mammals, and vegetation throughout the Park;
- Partners have carried out essential programmatic work, such as studies on demography, river catchments, soil erosion, megalith distribution, and maleo status;
- Published more than 28 reports or posters relating to conservation and management of LLNP (see Appendix XI);
- A Change analysis has been performed to show changes in forest cover – less than 1% of the park area had been opened from 1983 to 2001;
- Forum Kemitraan Taman Nasional Lore Lindu have developed as a communications organization, with conservation capacity and start to publish newsletters;
- Conservation awareness teams have distributed materials to all of the 243 primary schools around Lore Lindu, promoted a New Year/Wildlife Day event, prepared a public educational display for the provincial museum, and surveyed and analyzed results of the campaign in raising awareness. Over the campaign period general awareness of Lore Lindu National Park was raised 23 % (from 57 to 83%);
- Developed and used a Community Site Conservation Planning tool to provide community inputs to the Park planning process, this tool is now being used at other TNC sites;
- Produced a valuation of the water resources of Lore Lindu National Park at $ 8.9 million per annum;
- Prepared a GEF/UNDP Block B project proposal (on hold pending improvement in current social climate);
- Carried out baseline forest quality monitoring at 24 sites around the Park;
- Prepared a lessons learned document and shared it with major conservation organizations and donors.

NEXT STEPS

This grant has contributed tremendously to establishing a conducive enabling environment for improved management of Lore Lindu National Park. Methods and concepts are ready to be taken forward by TNC, BTNLL, CARE, CSIADCP, or other partners. In particular, collaborative management and community conservation agreements are set on the conservation agenda for the immediate future.

ACKNOWLEDGEMENTS

The Nature Conservancy would like to thank all those who contributed to the implementation of this project through the rough and the smooth times, particularly TNC employees and contractors who contributed their all, often under very trying circumstances.

We would also like to thank all our partners in this work, including Mr. Banjar Y. Laban (Head of BTNLL) and his staff; Mr. M.Z.Hudiyono (Head of BKSDA Sulawesi Tengah); and Mr. Heri Djoko Susilo and Mr. Agoes Sriyanto (PHKA) who contributed tremendously to the development of the collaborative management concept. Local partner NGOs were vital to completion of large parts of the work, in particular we would like to thank both the organizations and staff of FKTNLL, Yayasan Jambata, Yayasan Katopasa, Yayasan Kayu Riva, Yayasan Maleo, Awam Green, Yayasan Pekurehua, Yayasan Tadulako Membangun, Yayasan Tadulakota, BKKPA, UGM, and LPSL for their valued contributions.

Communities around the Park deserve our special gratitude, particularly those involved in the Community Conservation Agreements, the Site Conservation Planning consultations, and those individuals who supported mapping, research, and educational programs. We hope that we can continue to work together well into the future.

Finally, we would like to extend our gratitude to Mr. I Ketut Djati, Project Manager for USAID, for his support and understanding, and to Mr. Fred Pollock and Ms. Anne Patterson of Rural Environmental Management (REM) Office of USAID Indonesia for their continued support during the implementation of this grant.

LIST OF ACRONYMS

ADB	Asian Development Bank
BANGDA	*Pembangunan Daerah* – National Agency for Regional Development – Ministry of Home Affairs
BAPPEDA	*Badan Perencanaan Pembangunan Daerah* – Provincial/Kabupaten Planning Board
Bappedalda	*Badan Pengendalian Dampak Lingkungan Daerah* – Provincial/Kabupaten Environmental Impact Agency
BCN	Biodiversity Conservation Network
BIOTROP	South East Asian Regional Center for Tropical Biology
BKKPA	*Badan Koordinasi Kelompok Pencinta Alam* – Local Forum for Nature Groups
BKSDA	*Balai Konservasi Sumber Daya Alam* – Provincial Conservation Authority
BPD	*Badan Perwakilan Desa* – Village Representative Council
BTNLL	*Balai Taman Nasional Lore Lindu* – LLNP Management Authority
CARE	CARE International (a development aid organization)
CCA	Community Conservation Agreements
CIFOR	Center for International Forestry Research
CED	Compatible Economic Development
CSIADCP	Central Sulawesi Integrated Area Development and Conservation Project
CSSP	Civil Society Support and Strengthening Program
DPR (D)	*Dewan Perwakilan Rakyat* (Daerah) – (Provincial) Legislature
FKTNLL	*Forum Kemitraan Taman Nasional Lore Lindu* – Forum of Friends of LLNP
GOI	Government of Indonesia
GIS	Geographic Information System
GPS	Global Positioning System
KTPH	*Kelompok Tani Pencinta Hutan* – Farmers' Conservation Group
LKD	*Lembaga Konservasi Desa* – Village Conservation Organization
LKK	*Lembaga Konservasi Kecamatan* – Sub District Conservation Organization
LLNP	Lore Lindu National Park
LPSL	*Lembaga Pengembangan Sumberdaya Alam dan Lingkungan* – Palu based NGO

NGO	Non-government organization
NRM II/EPIQ	Implementor USAID funded NRM II sub – program components
NRM II	USAID/Indonesia Natural Resource Management II Project
PDAM	*Perusahaan Daerah Air Minum* – Provincial Water Company
PHKA	*Perlindungan Hutan dan Konservasi Alam*, Directorate General for Forest Protection and Nature Conservation, the parks' management agency within the Indonesian Ministry of Forestry
PMD	*Pembangunan Masyarakat Desa* – Village Development Agency
RARE	International NGO for conservation outreach
SCP	Site Conservation Planning
STORMA	Stability of Rainforest Margins – a collaboration research program including University of Gottingen, Bogor Institute of Agriculture, and Universitas Tadulako (Palu)
TOR	Terms of Reference
TNC	The Nature Conservancy
UNDP	United Nations Development Program
USAID/PVO	USAID funded program for Private Voluntary Cooperation grants program
USAID	US Agency for International Development
Walhi	Wahana Lingkungan Hidup, foremost Indonesian environmental organization (Walhi Sulteng is its Central Sulawesi Chapter)
YPAN	*Yayasan Pusaka Alam Nusantara,* Indonesian partner NGO
YPAL	*Yayasan Perlindungan Alam Lestari* – Bandung-based ornithological society

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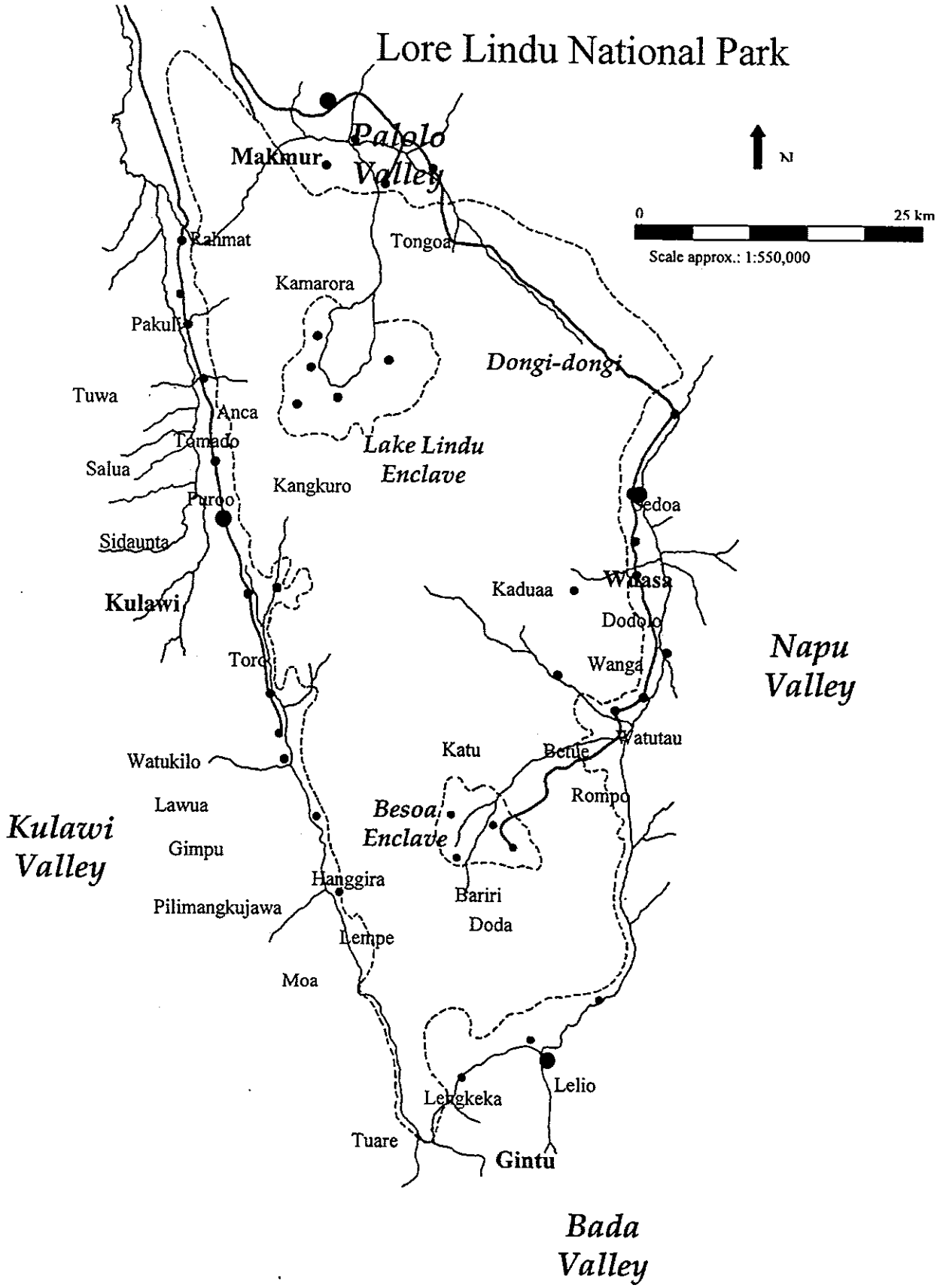
Lore Lindu National Park
N
0
25 km
Scale approx.: 1:550,000
Palolo Valley
Makmur
Rahmat
Tongoa
Kamarora
Pakuli
Dongi-dongi
Tuwa
Anca
Tomado
Lake Lindu Enclave
Salua
Kangkuro
Puroo
Sedoa
Sidaunta
Kulawi
Kaduaa
Wuasa
Dodolo
Napu Valley
Toro
Wanga
Watutau
Katu
Betue
Watukilo
Rompo
Lawua
Besoa Enclave
Kulawi Valley
Gimpu
Hanggira
Bariri
Pilimangkujawa
Doda
Lempe
Moa
Lelio
Lengkeka
Tuare
Gintu
Bada Valley

INTRODUCTION

Lore Lindu National Park

Lore Lindu National Park (LLNP), Central Sulawesi (see map attached), covers just over 217,991 hectares (per Ministry of Forests and Plantations Decree # 464 Kpts-II/1999) and contains the main watersheds for the province and its capital, Palu. The Park is recognized as a UNESCO Man and Biosphere Reserve and has been nominated by the Government of Indonesia as a World Heritage site. Located near the point where four islands collided during the Miocene era to form the island of Sulawesi, Lore Lindu is a mountainous park and harbors some of the largest unbroken tracts of forest on the island. The park is home to 232 recorded bird species (73% of Sulawesi's total number of land birds, 66 of which are endemic) and provides habitat to many of Sulawesi's endemic mammal species, including the Babirusa, Anoa, and two species of Tarsius. The Government of Indonesia declared Lore Lindu a national park at the World Parks Congress in 1982. About 95% of the Park is montane forest rich in oaks, chestnuts, laurels, and several economically important species of rattan. Species-rich lowland rainforest cover about 5% of the Park fringes.

Like many parks in Indonesia, the forests and wildlife of Lore Lindu are threatened by agricultural encroachment, illegal harvesting of forest resources (particularly rattan and timber), and hunting, all of which are driven by poverty and landlessness amongst the communities surrounding the park. Since the advent of the country's fiscal and political crisis, encroachment pressures on the park's boundary have increased, with cacao becoming a favorite cash crop planted in gardens within the park itself. Also, recent and proposed infrastructure development, particularly for provincial roads and hydroelectric power, make the park vulnerable to fragmentation and accelerated boundary encroachment.

The Nature Conservancy in Indonesia

Since 1991, The Nature Conservancy (TNC) has been working in partnership with PHKA (formerly PKA) Ministry of Forestry, to improve park management capability and communication and coordination between PHKA, provincial governments, and local communities around selected protected areas, including Lore Lindu. The Conservancy's approach at its two principal projects, Komodo and Lore Lindu National Parks, has included the following components: 1) strengthening park management and enforcement capacity, 2) building conservation awareness in local communities around the parks, and 3) developing alternative income generation opportunities for user groups. Through other sources of support and collaboration, the Conservancy is developing site-based capacity-building initiatives that emphasize private sector engagement and participatory park management coalitions involving a variety of stakeholders. At Lore Lindu, these activities focus on improving

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Community-Park relations by establishing channels of communication between the parties, and on the active involvement in management of a variety of partners, including site-based NGOs and NGO coalitions, and local community organizations.

TNC activities at Lore Lindu National Park

Looking at national parks across Indonesia, it is clear that national park guards acting alone are unable to protect a park. At Lore Lindu, TNC is working to foster a more conducive, participatory, approach to park management involving community groups and other stakeholders working closely with Balai Taman Nasional Lore Lindu (BTNLL). TNC is also involved in community development programs that are associated with strengthening the conservation aims of the Park. The focus is on community-based planning, institutional strengthening, creating conservation awareness, and on alternative, environmentally compatible, approaches to local economic development. By developing models for implementation, TNC has also helped prepare for the major investments of the ADB-sponsored Central Sulawesi Area Integrated Development and Conservation Project (CSIADCP) activities, which began in mid-1999.

TNC has taken an important leading role in the planning and organization of biodiversity and ecological studies of the Park; these studies have provided invaluable data for the redrafting of the original 5 year and 25 year Park management plans. This latter task involves TNC collaborating closely with the CSIADCP, which is also implementing ecological and biodiversity studies in and around the Park.

Central Sulawesi Integrated Area Development and Conservation Project

In recognition of the importance of the Park and the pressing human welfare issues in the surrounding communities, the Government of Indonesia and the Asian Development Bank (ADB) have worked together to design the *Central Sulawesi Integrated Area Development and Conservation Project* (CSIADCP). In August 1997, a Memorandum of Understanding was signed that outlined the key elements of a $43 million project to "promote sustainable development in and around the Park, i.e. economic development that is environmentally sound and beneficial for the local population and the Park." The project includes significant investments in capacity building within PHKA, BAPPEDA, other government agencies, and the surrounding communities to enable them to implement "an intensive community-driven development planning process" and to "facilitate collaboration among the park authority, local government units, villagers and NGOs". The project's components include rural community development initiatives, a park and buffer zone management program, various agricultural support and infrastructure developments, and specific institutional strengthening

programs to ensure coordination between government and private sector partners and long-term sustainability. The ADB is providing project financing in the form of a $29 million loan. Although no specific contracts or obligations exist, USAID's grant to TNC is cited in the ADB Loan Covenant as a GOI matching contribution to this loan.

HIGHLIGHTS FOR THE PERIOD JULY TO DECEMBER 2001

Overview

The period of the grant was amended to expire on 31 December 2001 under a no-cost extension agreement. During this period main achievements have included the following:

- Completion of a final draft 25-Year Management Plan for the Park;
- Completion of 5 community conservation agreements;
- Continued development of the GIS Facility and training for BTNLL and BKSDA staff in managing it;
- Mapping teams have completed a total of 14 community maps;
- Ecological surveys have been completed for birds, small mammals, and large mammal distribution patterns;
- Partners have carried out essential programmatic work, such as the demography, river catchments, and erosion surveys;
- Forum Kemitraan Taman Nasional Lore Lindu have been assisted to develop a conservation capacity and start to publish newsletters; and
- Conservation awareness teams have distributed materials to all of the 243 primary schools around Lore Lindu, promoted a New Year/Wildlife Day event, and prepared a public educational display for the provincial museum; and surveyed and analyzed results of the campaign in raising awareness.

These results have been achieved in spite of several challenging issues, including:

- Following the September 11 attacks on the World Trade Center expatriate staff working on the project were recalled to Jakarta for around a month, amongst uncertainty as to the social climate in Indonesia;
- The encroachment in Dongi-dongi, and culminated in a demonstration against TNC on September 12. There were serious concerns about staff passing through Dongi-dongi to reach the Napu Valley;

- Friction developed within the NGO community in Palu arising from attempts to resolve the Dongi-dongi encroachment. Taking the lead in repairing relationships with other NGOs (notably with Walhi Sulteng), TNC withdrew its staff from the field for a two weeks' cooling off period. This effectively meant a month lost, as staff had to reschedule village meetings and other activities; and
- Renewed clashes in the Poso disturbance in November 2001 led to another flood of refugees into the Napu Valley, generally destabilizing the social environment and distracting villagers from community agreements and other initiatives.

These events delayed major project activities; to overcome this TNC continued NRM II related activities and staff throughout January 2002, at its own expense.

CSIADC Project

The CSIADC Project has still achieved relatively few objectives: a review mission in February 2001 classified the CSIADCP project as 'Less than Satisfactory'. Since then the Project head has been replaced, and a monitoring and evaluation exercise held between November 2001 and March 2002. TNC's report to the monitoring and evaluation workshop is attached in Appendix II. Two major recommendations were that the monitoring program be continued, and that the Community Development Facilitators should not implement CCA as they are currently not able to perform a satisfactory job.

Major findings and recommendations yielded by the monitoring exercise (*Ringkasan Laporan : Evaluasi Kinerja Substantif pada posisi Pertengahan (Mid-Term) Proyek CSIADCP, March 2002, Bappeda Sulteng*) include the following:

Findings:

- The project has not yet laid strong foundations to achieve its overall goals – improving community (economic) welfare in an environmentally sustainable manner, and involving communities more in Park management - but has made some progress in raising the non-economic welfare of communities;
- Successful parts of the program include Medical Services, Clean Water programs, and Roads and Bridges programs; unsuccessful parts include Agriculture and Food crops, Village Irrigation, Training, Extension Services, Park Management, and Buffer Zone Management;
- The rate of forest loss has increased 5.6 times [based on TNC analysis] over the past two years, and this partly reflects improving international cacao markets, improving timber markets (international and domestic), timber permitting, weak enforcement of

illegal logging laws, but also indicates that the CSIADCP is not achieving its primary goal of assisting in the conservation of LLNP;

- Project management has been poor, particularly with respect to training, focus, and activities of the Community Facilitators, distribution of Social Cohesion Grants, and coordination of project consultants; and
- Changing conditions (the Poso unrest, a more vocal populace, an 'anti-loan' movement, and a dissatisfied community of stakeholders) mean that the project runs very high risks of actually achieving a negative outcome.

Recommendations:

- Immediately address management issues [before the Mid-Term Review];
- Option 1 – close the CSIADCP because it has slim chances of success, the cost of the loan compared to benefits is not balanced, and there is high risk of negative impacts from a dissatisfied populace;
- Option 2 – continue the project under strict management, with more focus in objectives, clearer accountability, project redesign and reallocation of funds:
  - Continue and improve successful components of the project (Health, Roads And Bridges, Clean-Water);
  - Discontinue unsuccessful components (Irrigation [both Kabupaten], Food Crops [Kabupaten Poso]);
  - Audit all components, and carry out compliance audit on some unsatisfactory management aspects (Buffer Zone Management, Community Extension, Packet 4 Consultants);
  - Continue and improve Park Management activities, particularly the transfer of methodology from TNC's Community Conservation Agreements (CCA), an inventory of status of conservation agreements at 60 villages, and development of an ongoing process to achieve CCA in these villages;
  - Completing the Zonation process based on CCA;
  - Reallocate funds to maintain the GIS system [ex TNC, now with BTNLL] and community monitoring of forest quality;
  - Develop a coordinated strategy for sustainable community development based on inputs from various actors (TNC – transects, GIS monitoring, SCP process; CARE and STORMA – agriculture studies);
  - Suspend the two NGOs carrying out community development components, implement a compliance audit, and put control of this aspect under the Project Coordination Unit [previously controlled from BANGDA]; and
  - Involve local government (Pemda) in improving legal control of illegal logging.

A mid-term review is scheduled for April-June 2002 – it is clear from the above findings that continuation of the CSIADC Project is in doubt.

TNC participated in the selection of companies to carry out the LLNP biodiversity surveys planned under CSIADCP. Teams have now made initial presentations to stakeholders in Palu in November 2001, and are presumably about to start field activities.

Several attempts were made to engage CSIADCP more in park management activities, in particular two proposals were written to release funding. The first proposal dealt with Collaborative Management and proposed a structure for supporting Community Conservation Agreements and formation of Buffer Zone Forums for coordination. The second proposal was for ongoing funding for the LLNP GIS Facility to provide mapping and monitoring support for CSIADCP and other programs. CSIADCP funds are currently being allocated to the value of Rp 5,00,000 per month, and the STORMA research program has committed to funding some of the maintenance costs from July 2002.

A comparison of objectives of CSIADCP and TNC as laid out in the Loan Covenant is presented in Appendix III.

Lessons learned

In the last three months of the grant period, TNC commissioned an internal analysis to synthesize important lessons learned from implementation of this grant. The report, entitled "Lessons Learned from Building Conservation Capacity and Partnerships at Lore Lindu National Park", has been presented elsewhere, but the main points are worth summarizing here:

1. **Project Design :** ***Although synchronizing efforts with other projects may increase outputs, there are risks inherent in such relationships. In designing a program it is, therefore, crucial to ensure that linkages generate complementary effort without creating over-dependence.***

   This lesson refers mainly to collaboration with the $33 million ADB-sponsored CSIADCP, where TNC tried to marry its programmatic work closely with that proposed by CSIADCP. However, CSIADCP contributions to the program, which were in many cases required in order for TNC to complete activities satisfactorily, were never received. TNC's program was also reliant on the positive, or at least neutral, enabling environment created by successful implementation of the community development aspects of CSIADCP project. This was also never forthcoming. TNC now looks at ways to collaborate with CSIADCP to compliment its activities, but without actually depending on the ADB program to achieve any shared outputs.

2. **NGO Partnerships:** ***Implementing a project through a single partner is not a viable strategy for achieving programmatic outputs, especially when questions of autonomy are present.***

   TNC believed that developing the capacity of a nascent conservation organization called Yayasan Pusaka Alam Nusantara (YPAN) and ensuring that programmatic and grant deliverables were met in a timely manner could be achieved simultaneously. But the relationship between the two organizations was ill-conceived, and the 'sole partner' approach upon which it was based extraordinarily limiting. This led to tremendous disruption, which impacted both capacity building and conservation goals. The YPAN experience challenged some TNC organizational assumptions about the benefits of developing the capacity of and working through a single partner. The failure of YPAN highlighted the need for a more realistic and achievable capacity building goal, one based on the formation of relationships with multiple and completely independent partners.

3. **Communities Lesson:** ***Innovative mechanisms that generate either economic or non-economic benefits for communities are necessary to engender an enabling environment under which conservation goals can be pursued.***

   Poor rural communities find it very difficult to bear the full opportunity costs of setting aside lands for conservation that they depend for a portion of their livelihood. By employing innovative techniques at LLNP, such as adaptation of TNC's Site Conservation Planning methodology, Community Conservation Agreements, and Compatible Economic Development through alliance with CARE Indonesia, TNC set about to improve the willingness of people living around the park to commit to its long-term survival. These methods have generated strong community support around the park, and a good amount of local interest both in Palu and in the broader conservation community.

   An extremely important decision was taken that economic development initiatives should be carried out independently of conservation initiatives. The non-arrival of CSIADCP benefits in Kamarora, which contributed to the Dongi-dongi encroachment, points to the weakness of promising future benefits through conservation agreements (contracts, or other accords), when there is no absolute guarantee that the benefits will be forthcoming.

4. **National Park:** ***In the current socio-political environment of Indonesia, working within the confines of a national park can place a program in a reactive or defensive position that limits its capacity to accomplish far-reaching conservation goals that are potentially vital to the park's long-term viability.***

   In June 2001, 500-700 villagers began clearing forestland in Dongi-dongi, a flat fertile

valley in the park that is easily accessible by a major road. Organizations concerned with land rights of communities took up the cause of the farmers squatting in Dongi-dongi. As TNC played an important role assisting in of development a zonation plan for the park, it became a focal point for the grievances of the farmers and the organizations supporting them. As a result of tensions in Dongi-dongi, TNC was forced to become reactive to external events and unable to plan its conservation initiatives under the NRM II grant.

TNC now seeks a better enabling environment in Central Sulawesi by not restricting itself to work only in protected areas, but by identifying those landscapes, habitats, or specific communities and species, that are deemed of crucial conservation importance, both inside and outside of protected areas.

5. **Succession Strategy:** ***When implementing large grants, an institution-wide effort must be undertaken to ensure that a succession strategy is ready to be launched long before the grant term ends.***

   TNC has not been successful in raising new funds to build on NRM II initiated conservation activities, and as a result has wound back operations in Central Sulawesi considerably. This points out the need to develop a succession strategy on medium-term and large-scale awards, like the NRM II grant, well before the project's terminus. Given the man hours required to develop proposals and source new funds, this plan should be in place at least 18 months before a major grant closes. This requirement should not be the sole responsibility of program implementers, but instead requires wide-ranging support throughout the organization.

The adapted Site Conservation Planning (SCP) process as used at Lore Lindu has proved to be a very effective tool for involving communities in discussions about management of the Park. In particular, these meetings provided concrete suggestions that were incorporated into the 25-year Management Plan. This technique is being transferred to the new TNC project at Sangkulirang, East Kalimantan – staff are being trained in SCP by experienced TNC staff from Lore Lindu.

Major Social Unrest

Since 23 May 2000 there has been severe rioting in the Kabupaten town of Poso, resulting in virtually complete destruction of the town, and of several villages surrounding it. To escape this fighting refugees have flooded out of the Poso region to other areas, based on their religious affiliations: Moslems have fled to Parigi, Palu, Ampana, and Makassar; whereas Christians have fled to Tentena, Bada, and Napu. There have been periods of calm throughout this strife, but a major period of unrest destroyed seven villages and caused

Conservation and research activities in Palolo, Dongi-dongi and Lore Utara (Napu) areas are being implemented with great care. As of September 2001, at least 60 hectares of forest had been cleared (result of GIS analysis), by March the figure has probably trebled. There have been several attempts by local government to persuade farmers to leave Dongi-dongi (a letter from Kabupaten Legislature [DPR] in June, and deadlines from both Bupati Donggala and Governor Sulawesi Tengah) but so far without success.

Distribution of Equipment

As per USAID instructions, most of the equipment purchased under the NRM II grant has been distributed to a range of partners in and around Palu. These include 2 government partners (BTNLL and BKSDA) and 9 NGO partners (Yayasan Katopasa, Yayasan Kayu Riva, Yayasan Pekurehua, Yayasan Jambata, FKTNLL, BKKPA, Yayasan Tadulako Membangun, Awam Green, LPSL). Before distribution the list was reviewed by the NRM II Project Manager, Mr. I Ketut Djati, and distribution took place in the first week of March 2002.

SIX MONTHLY NARRATIVE REPORT

IR I. Institutional Strengthening

***Objective*: Strengthen PHKA skills in park management and community involvement at LLNP through joint park planning activities, research, and specific training programs**

Activity 1.
With PHKA staff, conduct a formal situation assessment to identify existing needs and problems in park management and in coordination between and among agencies and local institutions and to assess key private sector partners to work with PHKA on LLNP management. This process will include PHKA senior staff, representatives from local NGOs, and TNC staff.

During the process of revising the 25-Year Management Plan, nine workshops were held between May and August 2001 to discuss management issues in depth. These workshops have included senior PHKA staff, BTNLL staff, government agencies, and community groups to ensure widespread inputs into the plan. The six Site Conservation Planning (SCP) consultations held in rural communities showed that villagers identified lack of dialogue with park management as one of their major grievances. The seventh and final SCP consultation involved provincial level managers and was held in July 2001, and all SCP results are presented in Volume III of the Management Plan (Draft). A synthesis of these various inputs was made to inform discussion of management issues and strategies presented in Volume II of the Plan. (see *IR I Activity 3* below).

Activity 2.
Hire a Parks & Planning Advisor to provide technical assistance to PHKA in the establishment of the UPT, to assist in the revision of the park's management plan, and to develop closer coordination between the park management and regional planning activities conducted by BAPPEDA in Palu.

Dr. Darrell Kitchener was appointed to the position of Director of Terrestrial Conservation – to represent terrestrial programs to PHKA, to identify program development opportunities, and to locate funding for them. He provided overview and technical support to the project, allocating approximately 30% of his time to LLNP. Other functions of the Parks and Planning Advisor were divided amongst three other positions – the Program Manager (Neville) represented TNC to local government and CSIADSCP; the Parks and Planning Advisor (Harris) rewrote the 25 year management plan; and the Science Advisor (Pollard) coordinated all TNC ecological studies and data analysis.

Although the Governor's letter # 050/269/BAPPEDA/1999 appointed Duncan Neville (Lore Lindu Program Manager) to participate as an official member of the CSIADCP Project Coordination Committee, meetings have been extremely irregular, verging on non-existent. Since late 1999, the project has been running without a dedicated Project Management Consultant, but communications have been maintained with the Packet 2 consultants for community development. The CSIADCP project was classified 'Less than Satisfactory' by an ADB review team in February 2001, and a new Project Leader appointed in May. Starting in November, a Monitoring and Evaluation exercise was undertaken involving all project stakeholders, including TNC. A copy of TNC's report to this meeting is presented in Appendix II.

In 1999, Dr. Kitchener drafted TORs for CSIADCP funded research programs – Ecological Research, and Biodiversity Research, with emphasis on fish, ferns, orchids, and dung beetles and participated in both selection processes (the first process was annulled). In October 2000, names of selected teams were submitted to ADB for confirmation that contracts may be issued. These surveys were due to run concomitantly with TNC's biodiversity studies, but the chosen survey teams only arrived in Palu in November 2001, after TNC's studies had finished (see section *IR II Activity 1*), and too late to include results in the management plan. This is one example of how far delayed many CSIADCP activities are.

Activity 3.
Update the LLNP 25-year management plan, including a buffer zonation component, to address opportunities and potential issues in the ADB-financed ICDP project. This activity will involve PHKA staff, regional planning staff from BAPPEDA, and representatives from local NGOs and Lore Lindu communities.

Mr. Keith Harris, who was appointed in October 2000, undertook the revision of the *Lore Lindu National Park 25-Year Management Plan.* One of his first tasks was to organize a multi-stakeholder study visit to Kerinci Seblat National Park, in February 2001. The team studied conservation activities, taking particular note of conservation agreements. They found that the agreement model used at Kerinci, which involves a one-off payment to participating villages in return for a conservation agreement, did not work to promote long-term commitment to conservation. On 3 March 2001, the team presented findings to CSIADCP and other interested parties at Bappeda Sulteng.

To ensure that local input is recognized to the full, and stakeholders (including government, communities, and NGOs) are all fully aware of the contents of the Plan, an extra book, Volume IV, has been produced. At about thirty-five pages, it is short enough to photocopy and distribute to stakeholders, yet contains an essential precis of the Plan, its aims, and management strategies for the future.

Rewriting of the Management Plan has incorporated information from a wide variety of sources, including previous management plans, existing and commissioned scientific studies, satellite mapping, and a series of planning workshops which focussed on key management issues, like Eco-tourism, Community Mapping, Community Agreements, and Monitoring.

The first draft of a 25-Year Management Plan for Lore Lindu National Park, was presented to Head of Balai Taman Nasional Lore Lindu, Ir. Banjar Y. Laban MM., on 2 July 2001. The revised draft was presented to PHKA between 31 July and 1 August in Bogor for review. Suggestions from this meeting were incorporated, with additional inputs from surveys, to produce a draft that was presented to stakeholders in Palu at a dinner on 28 November 2001. On the suggestion of Banjar Laban, a fourth volume was produced, providing a summary of the plan to local communities, local government, and other interested parties.

This draft was, and a final draft (in two languages) presented to Mr. Laban on 20 February 2002. This final draft is currently being circulated for input locally and at PHKA Jakarta.

The final draft, after translation and proofreading, consists of four volumes: Volume I contains background information on the park and its surroundings; Volume II contains the 25-Year Management plan strategies, and an outline of implementation for 5 years; Volume III contains site plans based on Community Mapping and Site Conservation Planning (SCP); and Volume IV contains a precis of the whole plan as a stakeholder summary.

The Scientific Advisor, Mr. Edward Pollard, was appointed in November 2001 to coordinate major studies - distribution surveys for birds (Raharjaningtrah, Mamengko/Birdlife International) and small mammals (Maryanto/Yani); vegetation surveys (Cannon), maleo nesting survey (Yayasan Jambata), and large mammal distribution survey (Burton). These surveys contributed to the vegetation and fauna databases and maps for the park, and are included in Volume I of the management plan.

In addition, several smaller surveys were coordinated, including: Field Guide to the Plants of LLNP (Wiriadinata/Soehardjono); megalithic sites in the Park (Yayasan Katopasa Indonesia), demographic studies (Yayasan Kayuriva); boundary condition surveys (Umar), water catchments (Danang Widjajanto), and erosion surveys (Abdul Rahim Thaha).

These activities have been invaluable in providing detailed scientific information for inclusion in the management plan. An important aspect of all studies is the involvement of local NGOs in data collection, and BTNLL staff in on-the-job training opportunities. Since January 2000, a total of 14 NGO members, 30 BTNLL staff, 2 BKSDA staff, and 38 village counterparts have acquired skills through participating in field surveys, monitoring, and use of GPS equipment.

This management plan contains extensive inputs from local communities. This input derives

from a series of community consultations carried out using an adaptation of TNC's Site Conservation Planning tool, which is discussed in more detail in section III.1.

Activity 4.
Hire and train two Community Liaison Officers to build partnerships between PHKA, local communities, and Community Facilitators working under the ADB-funded CSIADCP.

Ms. Nurnaena Agus and Mr. Erson Robby Tungka were selected in anticipation of the NRM II proposal, in November 1997. They have participated in the following training activities :

Nurnaena Agus

Activity	Date	Trainer
• Participatory Planning Approach	Nov. 97	TNC
• Participatory Rural Appraisal	May-June 98	TNC
• Land Management systems, study trip	July 99 (10 days)	YPAN
• Conflict Resolution	August 99 (1 week)	YPAN
• GPS use	Nov. 99 (1 week)	YPAN
• GIS basic operations	January 2000 (9 days)	Martin Hardiono
• Community Development (Trawas, East Jawa)	22-27 June 2000	PPLH Seloliman
• Socio-Economic Survey	July-August 2001	Ir. Irawati

Erson Robby Tungka

Activity	Date	Trainer
• Participatory Planning Approach	Nov. 97	TNC
• Participatory Rural Appraisal	May-June 98	TNC
• ToT for Community Strengthening Groups	0ct-Nov 98, 5 weeks	Bina Swadaya
• Land Management systems, study trip	July 99 (10 days)	YPAN
• Conflict Resolution	August 99 (1 week)	YPAN
• GPS use	Nov. 99 (1 week)	YPAN
• GIS basic operations	January 2000 (9 days)	Martin Hardiono
• Leader, study tour to Kerinci Seblat National Park	February 2000 (10 days)	-

Both have been key members of the Conservation Area Management team, working for both YPAN and TNC. Although both carried out a range of activities, in general Nurnaena led

socio-economic surveys in villages of Lore Utara and the Lindu enclave, and Erson conducted community mapping activities and negotiated one Community Conservation Agreement (Kesepakatan Konservasi Masyarakat) in the village of Betue, Lore Utara.

Activity 5.
Provide equipment and training to the Balai Taman Nasional Lore Lindu for GIS and computer mapping capability in Palu for boundary definition, zonation, and other planning needs.

a/ GIS Facility

A fully functioning GIS facility has been developed by Mr. Martin Hardiono. For administrative purposes, this equipment was donated to the BTNLL on 22 August 2000, and then returned to TNC for management. Five Garmin Geo Explorer 3 differential GPS units were purchased by BANGDA under the ADB project, and provided to BTNLL. These extremely accurate units were then loaned to TNC for use in the community mapping process.

Management of the unit requires additional skills in data-base management, software and hardware maintenance, mapping, GIS analysis, and other technical skills. As such skills are not yet available within by BTNLL, TNC has been providing these necessary skills through contract staff – a long-term service contract with Martin Hardiono, and a continuous management contract with Ir. Bambang Setyo. These skills are too detailed to be provided by local training, but it is hoped that links with PHKA's Information Centre for Conservation Areas (PIKA) could result in trained PHKA staff being allocated to Palu at some time in the future. The planned location of TNC's Conservation Research and Training Center in BIOTROP, Bogor also offers potential for further GIS development and training.

The GIS unit has been relocated to BTNLL in March 2002, and funding sought from a variety of sources. Direct funding is likely from TNC (which is funding operational costs until June 2002), particularly from STORMA (after July 2002) and CSIADCP. The unit will be semi autonomous, and will operate under a user-pays-costs system.

b/ Training

An introductory GIS course was presented over 31 January to 9 February 2000 to 4 YPAN Field Staff and Community Liason Officers and 3 BTNLL staff. Follow up activities stalled as BTNLL staff had routine work to complete. Two short GPS training courses on Garmin 12 units were given to 11 members of FKTNLL (including YPAN staff) on 10-11 April 2000, and on 13-14 April to 15 BTNLL Park Guards. The participants learned to read a GPS unit, set satellite signals, take waypoint readings, locate set waypoints using a GPS, and to care for the units. Martin Hardiono has also translated ArcView, Idrisi, and GPS handbooks into Indonesian for the facility.

There has been an obvious increase in skills of the BTNLL staff: relevant software has been installed on BTNLL computers and trained staff can now input basic data and produce maps. A joint field exercise at Omu Village on 3-5 November 2000, involved Park staff in mappings cacao gardens inside and outside the Park. Following this, BTNLL staff themselves plotted the park boundary in Palolo Sub District and entered the revised boundary into the GIS system. In May 2001, a team of 15 BTNLL, forestry staff, and villagers, participated in field training in the Lindu Enclave. This training lasted 7 days, during which the team used GPS units to map Park boundaries, land use, and sites of interest.

The GIS Facility has produced many informative maps, several of which are included in the management plan. GIS mapping is included in almost all studies around the park, and maps have been requested on several occasions by BTNLL to illustrate reports to local government. In November and December 2001, BTNLL staff accompanied by NGO members and supervised by Bambang Setyo, surveyed and mapped sawmills in Palu; this report has been instrumental in directing local government attention to illegal sawmills (report in Appendix IV).

Two BTNLL staff and two BKSDA staff participated in external GIS training courses at BIOTROP and Institute Teknologi Bandung in August and September 2001. Taking note of comments in the NRM II Review, TNC is trying to build capacity within BKSDA, with the intention of preparing BKSDA staff for management of their own GIS system to cover the whole of Central Sulawesi.

c/ Habitat Classification

Working with the Dr. Jarvie, Martin Hardiono analyzed existing maps on underlying geology, rainfall, topography, slope and water catchments, combining these with existing satellite imagery of vegetation patterns to produce a draft habitat map. Ground truthing revised this map to show 65 habitat types inside the Park. These became the basis of site selection for biodiversity survey teams.

This map was reviewed and Dr. Charles Cannon from February – August 2001, incorporating more detailed ground truthing exercises. Based on field surveys, it was shown that many of the 'habitats' were in fact generated by the GIS analysis, and could not be identified in the field. The vegetation type map was revised to show 12 vegetation (=forest) types: marsh, monsoon, lowland, lower montane moist, lower montane dry, montane, upper montane, heath, cloud, low anthropogenic, high anthropogenic, and undetermined. This simpler classification has resolved much of the confusion caused by 'mixed upper/lower montane' forest types, which Dr. Cannon found to be a result of image analysis and not a true picture of field conditions.

Field teams also located true Monsoon Forest in the northwest corner of the Park. This unique and rare habitat was once widespread around Palu – it will require significant management focus and rehabilitation. Zonation maps will be re-drawn to accommodate this finding.

Continued surveys were halted after September 11, when the US Embassy advised US nationals not to work in rural areas of Indonesia.

Activity 6.
Assist PHKA and local communities in developing and mapping a system of zones and boundaries for Lore Lindu National Park, beginning at twelve pilot villages.

A detailed workplan for community mapping, and development of a draft zonation plan, was developed by TNC Lore Lindu Program staff, and submitted to BTNLL, Direktur Jenderal PHKA, Kantor Wilayah Dephutbun, on 25 March 1999. A draft zonation map was developed for Lore Lindu National Park at a workshop at TNC LLFO between 20-24 November 2000.

The key feature of his map is that the Zona Inti (Core Zone has been drawn up to contain representative parts of all major habitats, and all three major water catchments, which are joined in a single, connected, unit. In this instance, major habitats were defined as those more than 600 hectares in extent; there are 24 of these habitats. Generally, habitats under 600 hectares are in fact artifacts of human disturbance. Only rough estimates of current use and disturbance were used in outlining the Zona Pemanfaatan (Use Zone), which needs confirmation with communities through land use mapping and village agreements. Areas of high disturbance were marked as Rehabilitation Zones, and all other areas as Zona Rimba (Forest Zones).

Some members of the NGO community misinterpreted this draft zonation map, which was released at one of the management plan workshops, as a final version. This issue caused some problems in the wake of the Dongi-dongi encroachment. Following a meeting facilitated by USAID, CSSP, and Walhi at Walhi Sulteng on 29 November 2001, it is now generally accepted that this map is still in draft form – it is based solely on ecological values, and utilizes GIS generated vegetation, habitat, settlement, and water catchment maps. It requires to be amended with social, management, cultural, and other features, which will alter the distribution of zones.

In November and December 1999, YPAN staff carried out a village selection process in October in 40 villages around LLNP, and settled on 12 villages (Kulawi : Gimpu, Pili Mangkujawa, Bolapapu; Palolo : Rahmat, Kadidia, Kamarora A and B; Lore Utara : Sedoa, Watumaeta, Watutau; Lore Selatan : Lelio, Kolori, Kageroa) as priority sites for Community Mapping and Conflict Resolution work. However, during village mapping, it became apparent that working in adjoining villages is the more productive approach, so mapping activities became focused in the Napu Valley.

YPAN began mapping community land use patterns at a pilot site in the village of Sedoa, Lore Utara sub-district from 8-13 May. The mapping activity yielded an unexpected result : it appeared that indigenous people still lived in the centre of the village, but that large areas of land surrounding the village were now controlled by Bugis/Makassar. This situation is indicative of the situation in other villages: in Watumaeta village 50% of the population are recent immigrants (since the road opened in 1990); the national census revealed that there were 200 more families living in the village than the 400 that the village head expected. He knew none of these people, nor their origins (presentation by anthropologist Tania Li, 6 July 2000). This pattern was repeated around the park, as shown by the demographic survey completed by Yayasan Kayuriva in October 2001. (See examples in Threat Analysis Report to CSIADCP, in Appendix II).

The May 2000 influx of refugees from Poso made further work in Sedoa difficult; mapping teams moved to the Palolo Valley and began to map the villages of Kamarora A, Kamarora B, and Kadidia. Following this, the team continued in other Napu villages – Watumaeta and Wuasa. Over the period January to December 2001 (under TNC leadership), they have mapped and performed socio-economic surveys in the villages of Kaduaa, Siliwanga, Watutau, Betue, Talabosa, Rompo, and Torire, for a total of 13 villages overall. Plans to map villages in the Lindu enclave did not come to fruition as two members of the mapping team (Tungka, Ladasi) were moved to the Community Conservation Agreements activities.

Land Use mapping in villages requires three stages – discussion meetings with villagers to explain the process, its purpose, and limitations, and to draw up sketch maps of the village; recording of field data by mapping teams which include villagers and BTNLL staff, and require an average of 15 days per village; and review and improvement of the maps by villagers. These activities have assisted communities to clarify village boundaries at Wuasa-Watumaeta-Alitupu, Siliwanga-Wanga, and Betue-Talubosa – boundaries were walked by village leaders, mapped, and the maps agreed to in a public meeting. In Kaduwaa villagers requested that damar trees *(Agathis sp.)* be included in the mapping, and members of FKTNLL with BTNLL staff did this in November 2001.

Three National Park boundaries exist in the northern Napu Valley – the boundary recorded by Biphut mapping teams, the boundary marked on Menteri Kehutanan maps, and the ground boundary marked by posts (and often disputed by villagers whose land it crosses). Clarifying the real location of these boundaries will require joint BTNLL/TNC/village mapping teams, and is an essential part of the Conservation Agreement process. The mapping teams make the following clear to communities before mapping takes place: that maps are intended as a tool for resolving conflicts and for village development planning; that individual ownership of land is not mapped nor inferred; and that the team have no authority to suggest relocation of boundaries.

Latest village maps are shown in Appendix V.

Socio-economic surveys that ran in parallel to the village mapping exercise have produced a good base-line of information on village demography, history, economy, and ethnography. These surveys also yielded important data on villagers' perceptions of problems they face. For instance, in Kamarora and Kadidia villagers estimated the costs of river control for the small stream Sungai Keli as Rp 150 million for a 5 km stretch of banking. This small stream has only become a danger to the villagers since forest clearance for coffee and vegetable gardens in the catchment led to siltation and overflowing of the stream where it passes the village.

The villages of Kamarora A, Kamarora B, and Kadidia have a high population density – a total of 3,203 persons live on a total land area of 2,870 hectares. However, only a very small part of this land is irrigated, and the dry land fields are not very productive. Not all of the land is available for cultivation, and wet/dry seasons are unreliable. Villagers were relocated to this are in 1979-1980, from communities in the mountains to the west of Palu, where environmental degradation was already severe. Many have had little experience of the cash economy and often sell land in hard times – of 100 families originally settled to Kadidia, only 74 still own land. It is perhaps no surprise that tensions with the park run highest in this area, nor that many of the villagers currently encroaching in Dongi-dongi originate form these villages.

These surveys also found that most of the villager participants were supportive of the national park, but that they did have specific requirements, and hoped that there could be simple resolutions. Issues included coffee plantations inside the park, access to timber and rattan resources, and a lifting of the communal guilt over accusations of forest destruction. They were willing to accept community agreements with the Park, as long as these were mutually beneficial, simple, and sure. This conclusion supports findings during the SCP consultations around the entire Park boundary – villagers in general want an ordered and understandable relationship with the National Park.

Report produced entitled "*Laporan Hasil Kegiatan Pemetaan Tata Guna Lahan di 13 Desa di sekitar Kawasan Taman Nasional Lore Lindu*" January 2002, by Marius Ladasi, Nena Agus, Erson Tungka, Tengko Wolok.

***Objective*: Build effective public/private partnerships to support conservation and compatible development at LLNP.**

Activity 7.
Expand the membership of the Forum Kemitraan TN Lore Lindu (FKTNLL) through the addition of representation from the BAPPEDA, other local government agencies, and private sector organizations.

The FKTNLL has a floating membership of about 14 NGOs, comprising about 50 individuals. Its structure could be best defined as a coalition, that is a loose amalgamation of separate agencies with a common goal. Essentially it functions as a "coffee shop" (*warung kopi*) where members meet and discuss issues facing the Park. There is a 'management board' of chairman, secretary, and three members but the aim is for activities to be carried out by FKTNLL's constituents. It has produced several working groups, including Kelompok Peduli TN Lore Lindu (Kopelindu) based in Kamarora, which was involved in addressing the (first) encroachment at Dongi-dongi, and in distributing conservation awareness materials to schools in Palolo Sub District.

As part of normal operating procedure, all TNC contracts and working agreements require that a presentation of results be made to the members of FKTNLL. This not only allows effective dissemination of knowledge, but the peer review process also ensures that members produce good quality work. TORs have been distributed to members, which have been recruited to carry out various activities organized by TNC, such as field surveys and distribution of conservation awareness materials to schools.

FKTNLL has coordinated several important conservation events – notably the Wildlife/New Year's Eve events of 2000 and 2001 – involved partners in key activities, and helped to distribute job announcements to its membership.

In September 2000 the FKTNLL appointed an Executive Secretary, and rented office space in Palu. This location (Jl. Tururuka II, No.8) is in regular use for meetings and presentations. (See also section *IR III Activity 3*). Under a Sub-Award Agreement developed in February 2001, FKTNLL equipped their office to fulfill a communications function. The office is now equipped with a computer and e-mail connection, and operates a list-server for member groups.

The FKTNLL also maintains a cutting library that is available to members, and has collected reports to develop a substantial library of references on Lore Lindu National Park. Since January 2002, the FKTNLL has also been producing a news letter entitled Svara Lore Lindu, with monthly articles on the park and issues of note surrounding it (example copy in Appendix VI).

***Objective*: Develop PHKA expertise in compatible enterprises that use forest resources.**

Activity 8.
Expand with PHKA and YPAN the community development activities through the further development of compatible pilot enterprises and extension programs.

Yayasan Jambata has been developing a bark-cloth manufacturing industry in the villages of the Kulawi and Bada valleys using funding from NRM II-EPIQ (July and October 1999) and the International Labour Organization (December 1999 to December 2000). Regular shipments of barkcloth had been exported from Bada and Kulawi to Graphic Products of Chicago, Illinois, but this was discontinued in August 2001 due to local pressure to raise prices above the purchaser's threshold.

Barry Ison of Anutech Pty Ltd. assisted by John Finisdore of TNC, conducted a major study of enterprise potential in October 2000. This work involved TNC and YPAN counterparts in a study of 19 villages around the National Park. Amongst the key recommendations were developing a database of economic information, and focusing on key potential enterprises like coffee, cacao, organic products (including cacao and coffee), handicrafts, and the improved marketing of rice, corn and other agricultural products. The study calls for more analysis of the role of CED in conservation and community development.

Cacao appears to offer opportunities for CED work with Lore Lindu communities: 30-70% of farmers surveyed by Ison, declared that coffee and cacao provided most of their cash income; Indonesia is the third largest cocoa producer in the world; and Sulawesi produces 30% of the US demand for cocoa, at around 200,000 tonnes. However, in June 2001 the head of BTNLL requested that TNC does not work with cacao, as he views cacao as one of the major threats to the Park, and an economic risk to communities because of uncontrolled fluctuations in the (export) market price.

In response to this, a compatible enterprise training program was drawn up under the USAID/PVO grant, in conjunction with World Education. This farmer-based training program aims to raise rice production by 30% in three of the villages that have enacted Community Conservation Agreements. The work takes place between February-July 2002 and is funded using TNC's private sources.

It should be noted that this process deliberately de-links community development activities from conservation agreements – this would only add another layer of complexity to the process (cf. problems with CSIADCP funding at Kamarora) and increase risk of failure. Instead, this activity addresses one of the major threats identified by villagers during the SCP consultation: that the opportunities for alternative economic activities are extremely limited (threat ranking #3).

During discussions with communities leading to the World Education training program, a tree-planting program was also developed. This aims to provide a ready supply of timber outside of the Park, and to strengthen riparian growth along river courses. Participating families plant 10 *Eucalyptus deglupta* trees each, at chosen sites. With the assistance of Yayasan Tadulako Membangun, families in the villages of Watutau, Sedoa, and Betue collected seedlings from

nearby floodbanks (*E.deglupta* is distributed by water, and many thousands of seedlings are washed away by floods) outside the Park. These seedlings were potted into polybags, then transplanted after 3 months. Transplant success is around 95%. In Sedoa 137 families planted 1233 trees, in Watutau 18 families planted 1176 trees, and in Betue 66 families planted 1188 trees, for a total of 3597 trees overall. The trees can be harvested between 10-25 years old, and the timber is in local demand.

IR II. Research and Development

> ***Objective*: Develop and implement monitoring and evaluation programs to track resource usage, impacts of development activities, and park management effectiveness.**

Activity 1.
Conduct biodiversity and species richness surveys in designated habitats to support a complete management plan for the Park.

Detailed reports on bird and mammal distribution have been included in the draft 25-Year Management Plan, based on surveys over more than 18 months using local consultants. The quality of work is outstanding, and TNC hopes that the individual researchers can produce scientific papers for publication in an international quality journal in 2002.

a/ Assessment of Bird Species Richness and species diversity

Under the leadership of Ir. Wahyu Raharjaningtrah (YPAL)and Ir. Chris Mamengko (Birdlife International), the Bird Survey Team has surveyed 74 transects of 1.5km each at 37 locations inside LLNP. A total of five FKTNLL assistants participated, three of whom now constitute the permanent survey team. The surveys are based on Variable Circular Plot and transect methodologies, backed by catch-and-release mist netting (24 net days per site).

Initial analysis of these data and information in the GIS shows that 165 species have been recorded, from 51,961 individual records. Of these, 155 species (n=32,508) were resident in 12 vegetation types over an altitudinal range of 1900m. The survey found 68% of Sulawesi's endemic birds inside Lore Lindu National Park. Endemicity was highest at altitude – in cloud forest almost 70% of species were endemic.

The analysis supported the simplification of vegetation types proposed by Dr. Cannon, and found highest diversity in Lower Montane Forest, with least diversity in Mixed Gardens. Cloud Forest and Lowland Forest also have lower bird diversity than Lower Montane Forest, this is probably due to greater human disturbance at lower elevations. The survey also found

that Savannah and Monsoon Forest birds constituted a distinct group, thus supporting the need for specific management activities to conserve these habitats.

b/ Assessment of small mammal species richness and species diversity

Field Supervisor for this team is Moh. Yani, assisted by 3 FKTNLL members as permanent team staff. As with the Bird Survey Team, assistants are also drawn from BTNLL Field Staff and local villagers. Mammal specimens are being identified and curated by Ir. Ibnu Maryanto of LIPI, who is also preparing a guidebook on the identification of Sulawesi mammals.

As of June 2001, surveys have been carried out at 33 locations and over an altitudinal range of 1,900m. For rats, a total of 23 species were recorded, 23 of these being endemic, from a total number of 271 individuals. This indicates a relatively low density of rats in Lore Lindu. The bat survey yielded 3118 records, which consisted of 22 species. Of these, 5 endemic species were caught, and 2 potentially new species of bat and 3 species of rat recorded. A third record for *Tarsius pumilus* was obtained from Mt. Roreketimbu, the first record for 75 years.

Analysis of the results indicates that rat diversity is very much influenced by disturbance – high diversity is only found in undisturbed habitats, particularly for endemic species. In contrast, biodiversity of the more generalist bat species is little changed by disturbance patterns. High altitude species are most affected by disturbance. Again, Monsoon Forest has a unique assemblage of species.

c/ Large mammal distribution

A survey of the distribution of large mammals was commissioned in April 2001. This focussed on the four main charismatic large mammals of the Park – the anoa, Sulawesi warty pig, babirusa, and Tonkean macaque. A team led by James Burton surveyed eight locations inside the Park using direct survey techniques and village interviews. The results can be summarized as follows:

Anoa: there is still a considerable population of anoa in the Park, with highest densities in the higher altitude cloud and upper montane forests around Rorekatimbu, Taveki east of Lindu, and Bulu Dali in the south. The most significant threat is through hunting with dogs and snares, sometimes by people living some distance from the Park. Hunting pressure has pushed the anoa back 5-10 kilometers from villages.

Babirusa : This species was not recorded during the study – even though villagers described the species, no skulls or other remains were found in villages (anoa skulls, by comparison, are common). On this basis it can only be present in small numbers, if at all, in LLNP.

Sulawesi Warty Pig : common at all altitudes up to 1500 meters above sea level, and infrequent up to 2000m. They were abundant in areas of high hunting pressure (Kamarora, Toro) and are not thought to be under threat.

Tonkean Macaque : although reasonably common, and not subject to heavy hunting pressure, the population of Tonkean Macaques at Lore Lindu are of conservation importance.

d/ Data Analysis

Data from field surveys is stored in a database using GPS coordinates and locality description. Between 3-10 June 2001 a workshop was held at Biotrop in Bogor to analyze all the data so far produced, to inform the management plan. This workshop was led by Dr. Ric How of Museum of Natural Science, Western Australia, attended by all senior researchers, GIS Facility managers, and facilitated by Edward Pollard. Exerts from Dr. How's letter (13 June, *pers. comm.)*after the workshop are worth recording :
"I will also say that the consultants that were employed at Lore Lindu ..... are certainly, by far, the best group of biologists that I have encountered in Indonesia. It would be remiss of me not to reiterate, as I did at the workshop, the impressive nature of the faunal survey of Lore Lindu. I know of nothing as intense for a large conservation area in Australian, or Asia for that matter. ..... The data I saw for the birds and mammals in Lore Lindu, at the hub of Sulawesi, was ecologically fascinating. "

Activity 2.
Develop a consolidated biological monitoring protocol to establish an ecological baseline for LLNP employing methodology that is replicable by PHKA staff and local volunteers.

During the span of the BCN micro-enterprise project, Forest Quality Monitoring was carried out on two separate occasions (March 1997 and June 1999). The system developed by Webb and Yani in June 1999 has been field tested, and results presented to BTNLL and local NGOs on 8 July 1999.

Initial surveys by YPAN staff (Bahar Umar) have been reworked to include the full range of indicators suggested by Webb and Yani. Transects have been completed at 24 villages. Some example results are presented in Appendix VII. Although much of the data still requires analysis, one interesting finding is that disturbance is not always directly related to distance from the forest edge/Park boundary – in many cases the highest levels of disturbance were found 400-800 meters inside the forest. This might reflect an attempt to be secretive by the farmers involved. However, there is now more encroachment from farming communities - sites at Torire, Lempe and Talabosa were re-surveyed in May, as the forest containing the original transects had been opened for agriculture.

A full report on these transect surveys has been prepared and will serve as a baseline for future surveys. CARE Sulawesi Tengah will be carrying out forest quality monitoring based on a methodology established in the Philippines – this is similar, but focuses on a range of indicators identifies by villagers rather than specified by scientists. In this regard, the SCP analysis at village level could help specify indicators for monitoring. The TNC staff member responsible – Bahar Umar – has since been contracted to advise on the monitoring methodology.

Activity 3.
Recruit local participation in LLNP monitoring activities through the Forum Kemitraan TN Lore Lindu (FKTNLL).

TNC has involved or supported the following NGOs in monitoring and research programs :

- Yayasan Maleo - mapping of encroachment at Dongi-dongi, June 1999; Faunal Survey of Rano [Lake] Padang, July-August 1999;
- Awam Green - ethnobotany sampling at Kamarora, June 1999; Vegetation Type surveys (supporting Dr. J. Jarvie), Jan-April 2000; Vegetation Surveys (supporting Dr. C.Cannon), February-May 2001; Flora Studies (with Dr. H. Wiriadinata), November 2000-April 2001;
- Yayasan Katopasa – Macaque Survey, June 2000; Survey of logging concessions around LLNP, January 2001, Megalith Survey, April-June 2001;
- Buttu Ma'dika and Fachry Nur Mallo - Checklist of the Birds of LLNP;
- Yayasan Jambata - Bird Surveys of Lore Lindu 2000-01; Maleo Nesting Ground Survey, April-June 2001; Sub Award to start developing Community Conservation Agreements at Tuva-Pakuli, August-December 2002;
- Bird and Mammal Surveys of LLNP – March 2000 – July 2001;
- Yayasan Pekurehua – Small Mammal Surveys of Lore Lindu 2000-01; Community Mapping in Lore Utara, June 2000-July 2001;
- Yayasan Kayu Riva – Demographic Study of communities around Lore Lindu National Park July-September 2001;
- Danang Widjajanto (Lecturer, Universitas Tadulako) – Study of the Water Catchments of Lore Lindu, October-November 2001;
- Abdul Rahim Thaha (Lecturer, Universitas Tadulako) – Study of Soil Erosion at Lore Lindu, October-November 2001;
- FKTNLL – Study Of Sawmills Operating In Palu, November 2002; Location Of Community Damar Trees In Lore Utara, November 2002

Activity 4.
Expand local NGO-led socio-economic monitoring program to measure impact of community development in boundary villages of LLNP.

Extensive socio-economic (base-line) surveys have been carried out by CSIADCP contractors (Yayasan Banua), and TNC was invited to provide input during development of the monitoring technique. Socio-economic monitoring under this NRM II grant has been smaller in scale and focused on the 13 villages where community mapping was performed.

With community mapping, consultations, and conservation awareness, these surveys are one of the important enabling factors in achieving community agreements. Two local NGOs have been recruited and trained to conduct these surveys in the Lindu Enclave (using PVO funding), as groundwork for community agreement teams there, should Lore Utara prove too difficult to work in.

Activity 5.
Initiate ecological research projects focused on cacao and other key threats to the park in partnership with CIFOR, local universities and PHKA.

A project proposal to examine the potential of shade-coffee plantations in maintaining forest-edge biodiversity has been submitted to UNDP by Dr. John Poulsen of CIFOR. Contacts have been made with groups from Gottingen University, Institute Pertanian Bogor, and Universitas Tadulako (Palu) who are planning a 15-year joint research program in forest-edge habitat in Central Sulawesi – the STORMA project. Although the CIFOR proposal is still in the review stage, the Gottingen proposal has been agreed and research teams have been working at Lore Lindu since September 2000. The GIS facility has been used to provide maps for two of STORMA's project sites.

YPAN instigated Training in Cacao Cultivation between 28-29 October 1999 for villagers in Gimpu, Kulawi Valley. This training showed participants how to prune bushes for maximum yield, and how to manage grafting for new plants. It was attended by 18 members of the Torowana KTPH group.

As noted above, in June 2001 the head of BTNLL requested that TNC does not work with cacao, as he views cacao as one of the major threats to the Park. Because of this, a small grant for training in cacao cultivation obtained from the World Cacao Foundation was underutilized.

TNC has maintained a small program of funding for undergraduate research projects based on the biodiversity of Lore Lindu National Park. Although experience shows that only about 50% of these projects are successful (completed scientifically), the small outlay involved is useful in promoting LLNP as a resource for local academicians. The following papers have been

completed (available on request, in Indonesian):

- "*Morphological Characteristics of the Red Jungle Fowl (Gallus gallus) at Lore Lindu National Park, Central Sulawesi*"; Dekius Tadjodja, 1999, Universitas Tadulako.
- "*Butterfly Diversity at Kamarora Village, Palolo District*', Selfi, 1999, Universitas Tadulako.
- "*Study of the causal factors for conflict between the indigenous populace and immigrants in the LLNP enclave, Sulawesi Tengah* ". Commissioned in support of a post-graduate research thesis by Putromo Paada, between April and November 2000.
- *"An ecological survey of the Sulawesi Eagle (Spizaetus lanceolatus) at Lore Lindu National Park*", Yulinda Asnita, 3415970573 Jurusan Biologi, Universitas Negeri Jakarta, December, 2001

Activity 6.
Commission a pilot natural resources valuation study in one village to begin to quantify benefits derived from the park by local residents.

YPAN worked with NRM II/EPIQ Sulawesi Tengah, FKTNLL, Bappeda Sulawesi Tengah, and Bapedalda Sulawesi Tengah in carrying out a training workshop on the evaluation of natural resources on 11-14 July 2000. A total of 57 people from government agencies, business, press, and local NGOs attended the workshop, with 41 people completing the training sessions. Amongst others, the Head of Bappeda Sulawesi Tengah (Drs. Taufiq Tiangso), Head of Bapedalda (Ir. Zainal Arifin), and various staff from NRM II/EPIQ (Aziz Khan, Togu Manurung, Virsa Sasmitajaya) presented training material.

Water Resources Valuation Study
Based on recommendations made during a scoping study by Marlou Church, TNC's Senior Advisor for International Water Policy (15-24 May 2001), a water evaluation study was carried out by consultant Vince Deschamps of ESG International (Canada).

Although Palu is reputed to be the driest place in Indonesia, the Palu Valley supports an extensive wet-rice agriculture system. One of the primary functions of Lore Lindu National Park is to protect the catchment area of the Gumbasa River which, in conjunction with other catchment systems, supplies water to irrigate the wet-rice fields of the Palu Valley, and contributes to groundwater stores that supply Palu's urban areas

Two major river catchment systems (comprising 118 sub-catchments) drain the Park : the Lariang, the longest river in Sulawesi, drains 60% of the Park to the south-west, reaching the sea in South Sulawesi; and the Sopu-Gombasa river flow into the Palu Valley and is controlled by irrigation systems at Pakuli.

The valuation study produced the following findings:

- Total Water Resource Dependents: 304,607 people from 67,160 households.
- Total Area of Irrigated Land: 22,338.1 hectares.
- Value of Crops and Plantations: Rp59.4 billion.
- Value of Livestock and Protein Sources: Rp16.4 billion.
- Value of Household & Industrial Consumption: Rp14.1 billion.
- Total Annual Value of Water from LLNP: Rp89.9 billion [approx.= $ 9 million p.a.]

The interim results of this survey were presented to a panel at Bappeda Sulawesi Tengah on 8 December 2001, and supported by the recently completed study on River Catchments (Danang Widjajanto, 2001). Participants included staff from the Public Works and Drinking Water Utility (PDAM) for Palu, and both agencies reported increased problems with water quality. Public Works noted that even small changes in catchment forest caused excess siltation at dams and weirs, necessitating increased dredging. PDAM noted that the ground-water is running down, and that extractions from the Palu River is planned in the near future.. Given that the River Catchments survey showed borderline quality with regard to organic content, PDAM will have to invest substantially in water processing facilities in the near future.

Given these factors, it is clear that preservation of water is an important function of Lore Lindu National Park. TNC's workplan for the next year includes a major campaign with partners to promote LLNPs' importance in maintaining water services. This campaign will involve a wide range of partners, and target both the provincial legislative and executive, and a wider audience in the community.

Water Catchment Survey

A team from Universitas Tadulako led by Danang Widjajanto carried out a survey of rivers and drainages in the Park between September and October 2001. The aim of the survey was to document the major rivers draining the Park, and to provide at least one measurement of flow rates and water quality in these rivers. The results were very interesting and provide useful supporting data for the Water Evaluation Study. A brief summary of results is as follows:

RIVER	*MINIMUM FLOW RATES m s^{-1}*	*MAXIMUM FLOW RATES m s^{-1}*
Sopu	7.00	33.20
Miu	4.99	11.29
Palu (Gumbasa)	43.48	179.11
Lariang	9.73	121.71

- Sediment loads in the Palu river can reach 1.529 tons per day;
- Sub-catchment Dongi-dongi has a peak surface run-off rate of 470 m3 s-1, and this could double if forest in Dongi-dongi was cleared. This flood flow into the sandy soils of the Palolo valley would be disastrous;
- The soils of Lindu are generally prone to erosion, and hold little moisture without tree cover;
- Water quality (organic content) in the Gumbasa and Lariang river systems is currently bordering on the unusable.

Soil Erosion Survey

A team from Universitas Tadulako led by Abdul Rahim Thaha carried out a survey of erosion in the Park between August and October 2001. The aim of the survey was to provide quantitative data on factors causing erosion, levels of erosion, and to identify areas of Park requiring rehabilitation. During this survey teams sampled 65 locations and prepared 40 soil profiles. A brief summary of results is as follows:

- The Park is generally only suffering low rates of erosion, except where forest cover is lost due to clearing for agriculture (Watukilo, Bomba, Lengkeka);
- Farmland around the park is suffering high rates of erosion – 25 of the surveyed sites showed Actual Erosion (EA) levels above the tolerated level (Etol);
- Only one location was observed where farming practices included terracing or other measures to prevent soil erosion (Mataue);
- River bank erosion was observed at several sites (Rompo, Kamarora, Katu);
- Locations have been graded into areas with very high erosion potential, high erosion potential, and medium erosion potential, and can be mapped;
- The study also provides a range of technical details on soil type which may be useful for researchers in the future.

***Objective*: Develop long-term financing mechanisms to support Park management and other conservation activities.**

Activity 7.

Provide technical assistance to PHKA and the Government of Indonesia to apply for GEF financing of the incremental costs of park management and continuation of the ADB loan-financed activities.

A GEF/UNDP Block B project proposal for Lore Lindu, Morowali Nature Reserve, and a forested corridor between them, has been developed in conjunction with PHKA. Research teams led by Dr. Carey Yeager, and involving local NGOs (Katopasa, Sahabat Morowali), BTNLL/BKSDA staff, and local scientists (Dr. Harry Wiriadinata, LIPI and Ir. Michael Padmanasa, Consultant), carried out ecological and sociological studies throughout the area during May and June 2000. Their findings were presented to a range of stakeholders for discussion over July 31-1 August in Palu – the stakeholders were generally supportive of an approach linking community participation through agreements and economic development. The full proposal, with a value of $ 2,496,500 over 5 years was submitted for consideration in January 2001. Unfortunately a decision has been postponed, awaiting improvements in the current socio-political environment in Indonesia.

TNC's *Business as Unusual* initiative has been looking at three potential funding activities : Carbon Sequestration, Indonesian Parks' Rescue Fund, and Sustainable Logging Practices. The first two have potential for positive impacts at Lore Lindu National Park.

Proposals for maintaining the GIS facility have been submitted, and may be successful in procuring operational funds for f.y. 2003 from STORMA, CSIADCP, and TNC.

In addition, a proposal on collaborative management for Lore Lindu has been prepared and submitted to a number of potential donors; BTNLL have also submitted this proposal to PHKA for submission to CSIADCP. Should CSIADCP continue, it seems likely that more money will be allocated to Park management, and that this could cover community participation in management forums.

IR III. Decentralization

***Objective*: Develop strong, contractual linkages between compatible resource use within the park and park conservation objectives.**

Activity 1.
Facilitate with YPAN the negotiations on three conservation agreements between PHKA and local farmers' groups (in Rahmat and Kamarora) regarding the cultivation of coffee and/or cacao within the LLNP boundary in exchange for conservation commitments by the farmers' groups.

a/Conflict identification and resolution
As with most National Parks in Indonesia, there are a number of existing conflicts between the local populace and the Park. Previous reports detail steps taken by YPAN staff to facilitate meetings between communities in the Palolo Valley (Rahmat, Kamarora, and Tongoa) and BTNLL to discuss boundary issues and community accesses agreements. In particular the issue of encroachment at Dongi-dongi, has been debated on several occasions, and both Governor and Bupati Donggala have issued letters to control this encroachment.

Unfortunately this issue again exploded in June 2001, with more than 500 villagers squatting in the forest at Dongi-dongi. There is no doubt that this issue is fuelled by landlessness amongst the communities of Palolo, many of whom never received the full extent of land they were promised by the government when they resettled in 1978-1982. However, there have also been a series of complaints that community development funds promised by CSIADCP have never materialized - in the villagers' minds, there is a clear link between conservation agreements and benefits from the CSIADC Project. YPAN tried unsuccessfully to facilitate the flow of this money, and its non-disbursement has been very damaging to TNC's reputation in these communities (as YPAN by extension). It should be noted that no CSIADCP village development funds have been disbursed to date (March 2002).

Although the DPR Donggala issued a letter within a week asking the Governor to locate alternative land for the villagers, they still remain in the forest at Dongi-dongi, where perhaps 200 hectares of forest have been cleared. Since the land being claimed is in Kabupaten Poso, and traditional lands of the Lore Utara people, there has been tension between communities. On 12 September 2001 the TNC office experienced a demonstration. On 25 September 2001 a meeting was held between the TNC and the Forum Petani Merdeka (which represents farmers in Dongi-dongi) to ensure TNC staff safety on passing through Dongi-dongi – so far the only incidents have involved verbal abuse.

A core of NGOs in Palu are supporting this encroachment, for example Walhi Sulteng, Yayasan Tanah Merdeka, Yayasan Bantuan Hukum Rakyat, but many more moderate NGOs do not, particularly those affiliated with the FKTNLL. Initial meetings inflamed tempers, exchanges of e-mail became more heated, and a series of demonstrations were held by both sides. There have been several reports in the press, which have further fanned the issue. TNC took some conciliatory steps by facilitating a meeting with Walhi, on 29 November 2001, but issues are still unresolved.

The occupation of Dongi-dongi has cast a large cloud over the Community Conservation Agreement process. Understandably, many villagers ask the legitimate question "If they can take Park lands without punishment, why shouldn't we do the same?"

b/ Site Conservation Planning
This process was designed to bring together a wide range of stakeholders to identify valuable components of the ecosystem, to analysis threats, and develop strategies for threat abatement. The original tool as designed by TNC was computer-based, but the methodology used at Lore Lindu is a more user-friendly format. The overall structure was maintained, but simple Participatory Rural Appraisal (PRA) type methods were used to increase participation.

A team of five persons was trained in using the tool, and they carried out consultations with stakeholders at 7 locations around LLNP, and at provincial level government. During its work, the team was guided by a Steering Committee comprising government and community leaders. The process was extremely effective, so much so that the team was invited to present an SCP handbook at the TNC Conservation Training Week in Miami, and the methodology may be used at other TNC sites around the world. The community based SCP process is being used at the latest TNC Indonesia Program terrestrial site (Sangkulirang in the Berau District of East Kalimantan) to obtain clear and valuable insights into conservation issues, threats, and potential management strategies.

Outputs are useful at several levels:

- *Systems* indicate particular aspects of the conservation area, or its ecosystems which communities see as being valuable, this can lead to particular management strategies, conservation awareness campaigns;
- *Timelines* focus discussion on the rate of change in systems, and the need to manage this change;
- *Stresses and sources* focus on the direct and proximal threats affecting a valued system, and enable ranking of the key threats;
- *Strategies* draws on the community understanding and history to determine what management strategies would be successful, and which would be difficult to implement.
- *A stakeholder analysis* describes the various parties who have an interest in the park, and what that interest entails.
- *Indicators of Success* are derived from the timeline, and develop simple indicators for monitoring of management strategies.

The full report of this process makes up around 50% of Volume III of the Lore Lindu 25-Year Management Plan. Findings were incorporated into a synthesis of issues and solutions to

guide formation of management strategies for Volume II.

The most important finding to emerge was that communities ranked some sort of participation in management as the most important strategy. A summary of findings is as follows:

Major systems identified as important to villagers, ranked by frequency, maximum is 7:

Rattan	7
Timber for household use	7
Water sources	4
Rare birds (Maleo)	4
Rare animals (Anoa Babirusa, Deer)	4
Forest/Protected forest	3
Medicinal plants	3
Hunted animals	3
Traditional land	3
Plants for weaving	3
Megaliths	2
Pastures	2
Damar	2
Bamboo	1
Butterflies	1
Bat caves	1
Bees	1
Community gardens	1
Recreation sites	1
Anoa	1
Lake	1

Critical Threats, ranked by score:

Tree felling	909
Land clearing	780
Ratan Collection	546
Hunting and snares	454
Population growth	446
Lack of alternative employment	290
Pollution	219
Irresponsible harvesting techniques	94
Natural processes	84
Increased prices for forest commodities and domestic goods	71
Habitat destruction	54
Predators / Exotic Species	40

Natural disasters (erosion, landlside)	57
Gold mining	15
Non-participatory management	8
Infrastructure development	1

Major Strategies	Frequency	Support score	Average support
Enforcement of regulations, with participatory monitoring system	115	330	2.87
Develop human resources	75	227	3.02
Alternative/compatible Economic activities	52	184	3.54
Spatial planning for district	21	74	3.52
Develop networks, markets, and promotions	14	49	3.5
Rehabilitation of opened forest lands	11	39	3.54
Develop infrastructure and systems	3	7	3.5
Carry out integrated and compatible research	1	4	4

It should be noted that although the highest ranked strategy was community involvement in management and enforcement, villagers were not completely optimistic of its levels of success. This is because they are somewhat jaded with current enforcement and management, and are not convinced that current attitudes will change, also that certain stakeholders will not be happy with this outcome. The final two strategies arose from provincial level consultations only.

Identified indicators were: an improvement in health of systems, a reduction or regulation of activities contributing to degradation and an improvement in local capacity to participate in conservation related activities.

c/ Community Conservation Agreements (CCA)

Establishing Community Conservation Agreements has been the major focus of work during the last six months of this grant. A dedicated team was established, with a workplan that builds on previous work in the Lore Utara Sub-District. Workplans and models were presented in the last semester's report.

Although the formation of community agreements was an original objective of the grant, the SCP consultation (above) and stakeholder workshops reinforced the need to develop a practical and effective method for involving communities in management. Community

Conservation Agreements are one part of this collaborative management system.

Site Selection

Sites for working on CCA were deliberately selected. Lore Utara District was selected as a difficult enabling environment ruled out the Palolo Valley, and YPAN had already started to carry out some of the pre-conditions for CCA in Napu. Also it was felt more useful to build up a critical mass of agreements in one District. The grant calls for three agreements, but five sites were selected in case agreements at any sites were delayed. Villages were selected by size (as an analogy for pressure on the Park) – Wuasa, a large village with 2,426 persons; Kaduwaa, a medium village of 904 persons, and Sedoa, a small village of 632 persons. The other two villages were selected at random – Watutau (695) and Betue (271).

Preparation

Teams were selected in July, with one individual responsible for a particular village. In the first two weeks the teams underwent an orientation activity, during which they identified 8 major points that needed to be included in agreements (following Owen J. Lynch, *pers comm*) :

1/ the area covered by CCA
2/ who has access
3/ what activities are allowed
4/ what activities are forbidden
5/ can rights be passed on, sold, rented, or willed
6/ what penalties are enforced
7/ time period of the agreement
8/ what organisations are involved

A multi-stakeholder meeting was held in the third week of July to engage all groups, it involved CSIADCP, CARE, BTNLL, PMD, Assistant 1 Bupati Donggala, Bappeda, and community representatives. The latter included the Steering Committee formed to oversee SCP consultations (this committee was not continued, as the community participants mainly came from villages enacting CCA).

SCP Analysis

The first step taken was to perform an SCP analysis with villagers to establish community priorities for management. This analysis also helped to identify targets and overall direction for the agreement, and served to switch participants on to resource use issues. Only Watutau village did not perform this analysis, and the facilitator later regretted this. Support from nearby facilitators was required during the SCP process.

CCA Committee

Each village then formed a CCA Committee. The advantage of first holding the SCP process is that it enabled facilitators to 'aid' the selection of a good committee, to

avoid selection of authoritative or paternalistic figures. Committees included village government, BPD (village legislature), women, youth, adat and religious leaders. The main aims of the committee are to provide continuity to the CCA process (the same people attend the meetings), to increase socialization amongst villagers, and to increase the feeling of ownership. Another important factor is to provide support for the facilitator, and to help them maintain enthusiasm – villages can be difficult places to work alone. Committees underwent a short orientation process, and were equipped with writing supplies.

Formulation of regulations

During September to November, a series of meetings were held in each village to assist formation of the regulations. (No activities were carried out in October as all field teams were recalled as part of a cooling down process agreed with Walhi). During these meetings the facilitator had an extremely important role to play, reminding villagers of both short and long-term aims, and by providing input on environmental issues as needed. It is important for at least one member of the facilitator team to be strong on ecological issues to act as a resource for others.

TNC mapping teams had already worked in all the chosen villages to perform land use maps and socioeconomic surveys.

Once a basic format had been agreed, then presentations were held to the wider village audience- CCA Committees were encouraged to do most of the presentations. One concern that arose during these presentations was that the agreements needed to have some legal standing. As a result of this legal opinion was sought.

Legal Opinion and collation of CCA

Two local legal practitioners were contracted to review existing community agreements and to compare them with draft agreements developed by TNC and communities. These from different backgrounds – Karman Karim SH being a practicing lawyer, and Heydar Lauje working in a legal aid foundation. After review both agreed that the CCA required some legal backing and that the best way to achieve this was by developing CCA into District Laws (*Peraturan Daerah, Perda*). Clearly ratification of 61 Perda would be an impossible task, so it was decided to develop one standard format that could be adapted to individual villages.

At this stage the head of BTNLL reviewed results of negotiations, and made suggestions for improvement.

On December 27 a meeting was held in Wuasa to pull together all five CCA. Communities were insistent that each agreement operated on a village basis, not on traditional (adat) land basis. They were also insistent that one CCA could not

represent all villages, but that each village needed an individual treatment. This was accomplished by developing an outline CCA that includes individual village management issues as an integral appendix.

Signing of CCA

The final CCA is a document of 32 clauses, which represent common regulations that can be applied to all villages across a Kabupaten. Appended to this document are a section on history and socio-economy, maps, and a section on participatory management applicable only to specific villages.

Once CCAs had been developed, communities signed them immediately. There was resistance from the head of BTNLL to be a co-signatory to the CCA as this was felt to be outside the mandate of BTNLL – the Ministry of Forestry established the Park and the management authority rest with them. However, the agreement was 'approved' by BTNLL, and witnessed by the Sub District head (Camat). Letters from BTNLL endorsing the agreements were issued in February (SK Balai # 197-201/VI.BTNLL-2/2002).

The five CCAs have now been signed by all parties except the Bupati Poso, who has withheld signing until participating communities can demonstrate clearly their capacity to manage the CCA. For this he requires a site visit and a presentation by communities with BTNLL to the Poso District Legislature (DPR Poso). We view this as a positive reaction – it will encourage communities to look more deeply at the requirements of the CCA and their own capacity. TNC will be accompanying this process in the year to come, training BTNLL staff and communities to manage the existing agreements and to develop a collaborative management system for the Park.

Institutions

The CCA (clause 22) specifies that each village sets up a management group, termed Village Conservation Organizations (*Lembaga Konservasi Desa*, LKD) which can have any name, but which should include members of local government, women's representatives, youth groups, religious groups, and adat councils, and also include one member of BTNLL staff. All five villages established these councils directly on signing. It was decided that Adat Councils would play a role not in managing the CCA, but in a role analogous to the judiciary, determining penalties and enforcing them. In the future it would be hoped that the LKD in one Sub-District are able to meet and communicate, the CSIADCP sponsored Buffer Zone Forums would be an ideal forum (named LKK, *Lembaga Konservasi Kecamatan*, Sub District Conservation Organization), but have still not been established. LKD and LKK would relate to BTNLL through its staff at village and Sub District level respectively.

Communities have proven to be extremely supportive of this process, and adat

councils perhaps more so. Adat leaders in the Lindu enclave are in the process of drawing up a CCA themselves but TNC has only been able to provide minimal assistance.

Problems

It has proven difficult to engage BTNLL staff. Where this did happen, as in Sedoa Village, the CCA process was greatly improved. The problems involve a lack of knowledge of the scope of CCAs, low levels of institutional backing, the perception that BTNLL staff should play an enforcement role only, and requests for increased wages.

The encroachment at Dongi-dongi is referred to at almost every meeting, and communities are skeptical that the agreements will be successful unless Dongi-dongi and cases like it are resolved. An agrarian movement is building amongst NGOs in Palu, and there have been some calls for the Park to be annulled. Given the fragility of CCA, there is the danger that irresponsible groups could undermine the process in the future.

Communities and development leaders acknowledge that there needs to be a minimum of two years support for communities that have enacted CCA. This will be a challenge for TNC and other agencies, especially as the number of Community Conservation Agreements grow.

The process of establishing CCA is a long one, and rightly so. Unless sufficient time and effort is put into socializing the aims and methodologies, CCA will not penetrate to all levels of the community, and will therefore fail. TNC does not feel that the current community development team contracted to CSIADCP (report to CSIADCP Appendix II) has capacity to continue this work, and is also doubtful that capacity can be developed without a change in management.

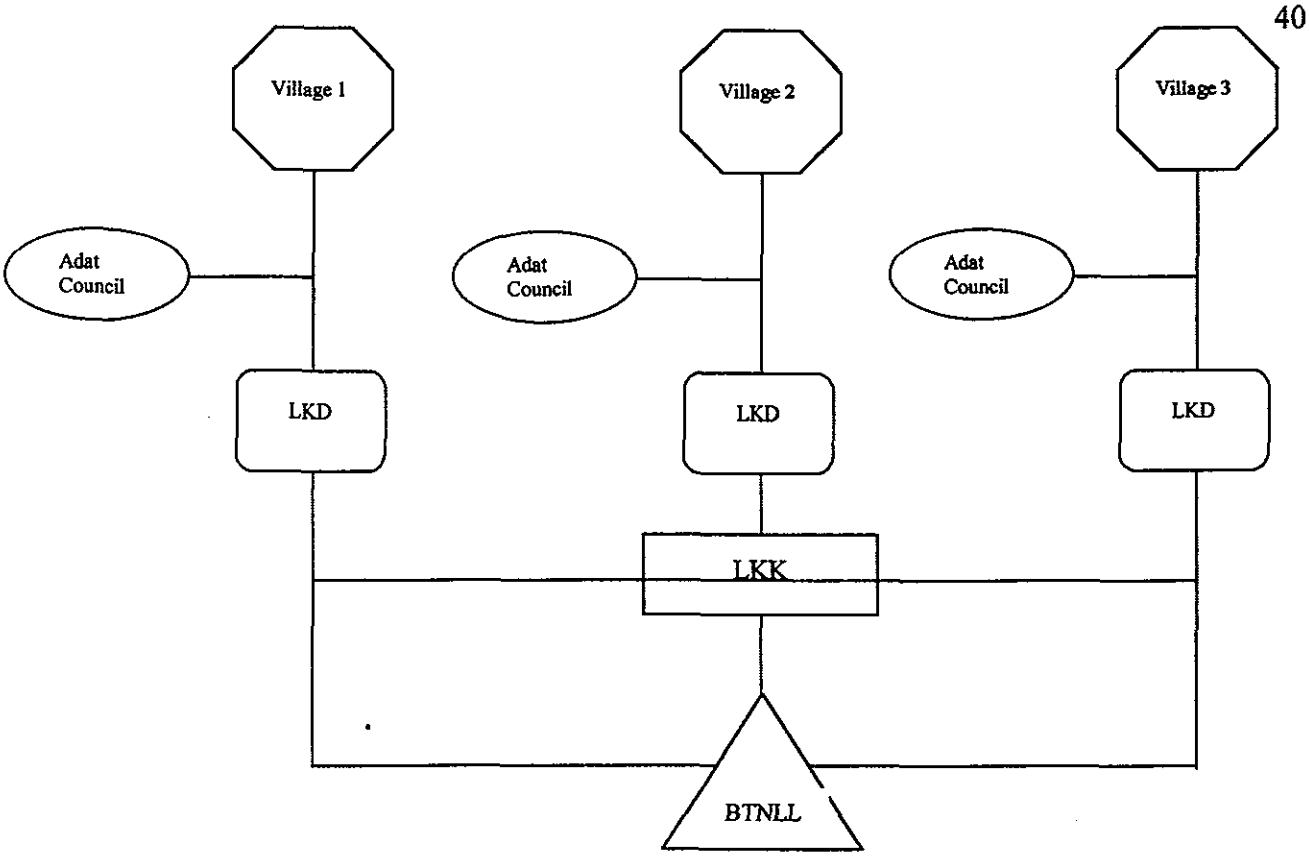

Diagram 1. Institutional support for Community Conservation Agreements

***Objective*: Engage local NGOs and government agencies in the management of Lore Lindu National Park and surrounding community development activities.**

Activity 3.
Assist YPAN in the institutional strengthening of the Forum Kemitraan Lore Lindu (FKTNLL) as a vehicle for broad participation of all stakeholders in the management of the park and the surrounding buffer zone.

TNC and **FKTNLL** developed a Sub-Award Agreement to develop a Secretariat at Jl.Tururuka II No 8. The main objective is that the FKTNLL Secretariat is meeting the information needs of its members, by providing access to internet, e-mail, electronic and printed media, and sharing of relevant research findings. The Secretariat has been the location for a number of meetings, presentations and discussions, and has been equipped with basic office equipment, a computer, and internet facilities. FKTNLL now runs a e-mail discussion group, and has started production of a bulletin on the Park, Svara Lore Lindu (example in Appendix VI). It maintains a cuttings library, and regularly hosts meetings and discussions. FKTNLL have been granted funds by CARE to continue their activities.

TNC has continued its policy of engaging **FKTNLL** members in all its activities where appropriate - all research TORs include a component for FKTNLL involvement. The result has been an increase in capacity of local NGO members to participate in field studies – for instance three members of the Bird Survey Team can now identify about 70% of all bird species in the Park.

Yayasan Jambata has focused on ornithological research, and carried out a second study of the maleo bird nesting sites of the park which showed that birds are generally decreasing in numbers, but also indicated considerable community interest in conserving the maleo. Results of the survey were debated at a public meeting on 30 June, and it was agreed that Yayasan Jambata would work with the communities of Pakuli and Salua to develop community agreements for the conservation management of the maleo. To support this, a Sub Award was drawn up between TNC and Jambata from August to December 2001. Results from this award are promising – they have discussed resource use with five villages, and found that most people want to see a stronger traditional (adat) council to control natural resources. They have a basis for conservation agreements prepared in 5 villages, but villagers have tended to focus more on penalties for breaking rules than on the quality of the rules, or on effective management of them. Jambata recognize this and intend to concentrate on strengthening the adat institutions. CARE has made a grant to Jambata to continue this work in 2002.

Yayasan Katopasa has carried out a study of megaliths around the Park, in association with local archeologists from the Palu Museum. This study has provided extremely important information on megalith locations and cultural sites around and inside the Park – this information will assist in developing Cultural Heritage Zones in the Park. The information has been drafted into a guidebook to the megaliths of the park, with a foreword by a specialist in Asian megalithic cultures, Dr David Bulbeck. This book will be published in 2002 at TNC's expense.

Kelompok Pencinta Alam Galara carried out a GPS survey of Dongi-dongi in June, just before the major encroachment event described earlier.

Yayasan Kayu Riva was contracted to collate existing data on the demography of the human population around Lore Lindu, and to estimate likely growth rates in the future. During July and August 2001, their teams visited every village around the park, and cross-checked village population data with government records. They discovered very high growth rates in most areas, particularly where access had been improved with the opening of asphalt roads. A brief summary of their results is :

- Total population of 61 villages immediately bordering the park – 68,377 persons
- The highest level of immigration is seen in Palolo (47%), and the lowest level in Lore Selatan (7%)

Between 1983 and 2001, roughly 0.86% Lore Lindu National Park has lost its forest cover to agricultural clearances. Although this means that most of the Park is still relatively intact, the rate of forest loss has increased more that 5 times in the last two years (see Table 1).

The maps clearly show that the areas most at risk of change are Sibalaya-Salua (Sigi Biromaru), along the Palolo boundary, Dongi-dongi (clearing along the Palolo-Napu road), Tuare (Lore Selatan), and Dodolo. The major factors appear to be large population size, rapid population growth rates, and ease of access to the protected area.

The cost of performing a change analysis using GIS is relatively low, quick, and complete compared to other monitoring techniques. The costs include purchase of satellite images (about US$ 3,500), one month's labor for analysis (US $ 5,000), and costs of maintaining the GIS and printing reports (US $ 10,000). So within two months following purchase of the image, clear data on the state of Lore Lindu National Park can be obtained. This can be compared very favorably with field transect monitoring, which requires one and a half years to survey 24 locations at a cost of about US $ 21,600 (rough costing).

Nevertheless, remembering plans to develop a collaborative management system, where participating villages need to see directly the state of surrounding forests, its important that monitoring of LLNP is carried out through a combination of these methods, so that each method can complement the other.

Activity 5.
Implement a workshop on illegal logging, and develop a framework for reducing the effect of illegal logging in Central Sulawesi.

A study sponsored by TNC and implemented by Yayasan Katopasa on logging concessions to the east of LLNP, and results from the SCP consultation, indicated that illegal logging was one of the major identified threats to the Park. Original plans for a small presentation to FKTNLL members expanded when it was realized other organisations had information on illegal logging that they too wanted to share. The resulting workshop, was held on 1-2 May 2001 inside the Provincial Forestry Department. More than 70 people participated, and an open and enthusiastic debate resulted. A working group was selected which produced province-wide recommendations for submission to the Governor.

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IR IV. Education

***Objective:* Build conservation capacity among community-based organizations, local NGOs, and PHKA to effectively manage together the resources of Lore Lindu National Park.**

Activity 1.
Develop and implement a training program on LLNP ecology and conservation for Balai Taman Nasional staff, local government, NGOs, and community groups.

Part of the Scientific Advisor's TOR relates directly to providing ecological training for BTNLL staff. Training planned for the third quarter of 2001 could not be carried out because of disruptions related to the recall of expatriate staff following the September 11 tragedies. However, BTNLL staff have been included in all research activities conducted around the Park. These staff were fully active members of the teams, and were instructed in the same practical survey techniques as FKTNLL members. As per December 2001, a total of 23 BTNLL staff had been usefully involved in TNC research activities.

As part of the BCN Forest Quality Monitoring, a Herbarium was established and members of three NGOs (Yayasan Maleo, Awam Green, and Yayasan Jambata) involved in botanical sampling, preparation and preservation of specimens, and curation of specimens. The Herbarium is officially owned by BTNLL, but is temporarily located at TNC Lore Lindu Program Office. However, this herbarium is dwarfed by that being set up by STORMA/Universitas Tadulako, and lack of capacity for long-term curation means that the BTNLL Herbarium would be better relocated there.

Activity 2.
Build local values on sustainable resource management.

It proved difficult to locate an outside contractor to carry through this activity. Instead, SCP consultations in each village encouraged detailed discussions of resource management issues, and a feeling that local control is required to manage resources into the future.

***Objective*: Raise conservation awareness within all of the boundary communities around Lore Lindu National Park and the provincial capital of Palu.**

Activity 1.
With YPAN, assist PHKA in the expansion of a broad-based conservation awareness campaign, targeting communities around the park and decision-makers in Palu, in partnership with the RARE Center for Species Conservation and local NGOs.

Many of the following activities, which were implemented by YPAN between 1999-2000 and from January 2001 by TNC, included partners drawn from a range of Palu and community based NGOs. Besides increasing the implementation capacity of a limited team, this also introduces more people to conservation awareness activities, and increases the likelihood that they will be continued.

a) Conservation Education

Conservation has gained a place on the local school curriculum via educational media distributed to primary schools (pre-NRM II), and *Pesta Konservasi* ('Conservation Events'), which are held on particular dates: on 22-26 November 1998 in Bomba (Bada Valley); on 13-14 January 1999 in Lempe (Besoa Valley) for Environment Day; and on 17 May 1999 in Sintuwu (Palolo Valley) for Earth Day. Two events were held on Independence Day, 17 August 2001, facilitated by local community partners. At these events school teams competed for a cup in sports, singing, conservation quizzes, and conservation speeches.

The concept for material was initially developed by TNC in 1997, and finished by YPAN in conjunction with Primary School teachers around LLNP (e.g. a materials development meeting in Lindu 9-10 July 1999 was attended by 60 persons, including teachers from 8 schools). Materials consist of flipcharts with 11 illustrations, annotated on the reverse side for teachers to read, and a Teacher's handbook, broken into 11 sections of detailed information to support the flipcharts.

Educational materials have been distributed to a total of 110 schools around Lore Lindu by the end of the project (including 92% of the schools bordering the Park). In this a range of partners organized the distribution effort, as in the table below:

Kecamatan	No. Schools	Partner
Kulawi	21	Yayasan Jambata
Lore Selatan	15	Yayasan Tadulako Membangun
Lore Utara/Tengah	24	Yayasan Pekurehua Yayasan Tadulako Membangun
Palolo	14	Kopelindu
Sigi Biromaru	25	Yayasan Katopasa Kopelmal
Palu	11	LPSL

Partners attended evaluation meetings on 5 April 2001 to share learning experiences, methods, and future plans. TNC staff monitored distribution activities, and found that a total of 4,973 children benefited from additional educational material. Teachers used the materials in a variety of ways – age groups varied from class I to class IV, generally for three age groups, some used the material in a stand alone course, and others inserted parts of the material into existing courses on biology or natural sciences.

There are many difficulties associated with developing this type of program in rural areas of Indonesia. Firstly, reaching schools can be difficult, with some more than 1 day away from asphalt roads. Perhaps more importantly there is a great shortage of teachers, and in the more rural schools, even of students. It proved extremely difficult to get materials incorporated into the local curriculum – the bureaucracy involved is extremely tedious, and in some districts only those schools directly bordering the Park were targeted. In addition, the material underwent many reviews and revisions, in future programs finished articles should be made available much earlier.

YPAN instigated a Conservation Training day for 60 students from various Junior High schools around Palu on 1-9 October 2000. The training session included sessions on Park management by BTNLL, and on traditional values by Yayasan Tadulakota.

b) Conservation Awareness

Cooperation with the RARE Center for Species Conservation began between 9-20 November 1998, when a workshop was hosted including BTNLL, NGO groups, religious and cultural leaders, artists, and YPAN plus TNC staff (total 24 people). The Sulawesi Hornbill, or Allo, was chosen as the Park's mascot. Since then conservation materials produced include:

Item	Number	Notes
Allo-Allo poster	1000	
Maleo poster	1100	Designed to support conservation campaign by Yayasan Jambata
Conservation Sermon sheets (Christian and Moslem)	500	Distributed in 41 churches and 37 mosques
Billboards	6	Located at the airport, port, road bridges and other strategic locations
Puppet Shows	6	Puppet shows performed by local schools at conservation events

Allo costumes	*5*	*Used by facilitators to enliven events*
Comic Allo-Allo Volume 1	5000	4840 copies shared at 275 schools
Comic Allo-Allo Volume 1	7000	Distribution planned for 2002
Lagu-lagu konservasi	350	Songs included in NRM II *Kampanye Peduli Konservasi* pack
Museum displays	1	In provincial museum, opened 12 February

Mobile display units have been developed for placement at events, and in key locations around Palu. Based on these, and utilizing more in depth material from the 25- Year Management Plan, a display for the Sulawesi Tengah Museum was developed cooperatively. This display uses posters, photographs, and a mock up tree with tarsius and allo sound effects as the basis for a learning experience for local schools. This is the first educational display, and the first display focussing on the living world, at the museum. The official opening was held on 12 February 2002, and attended by the heads of BTNLL, Provincial Tourism, and Museum, a selection of schoolteachers, and local TV crew. In the week following opening almost 30 schools visited the display and completed questionnaires.

c) Conservation Events

Throughout the course of this grant there have been many conservation events in Palu and around the Park to involve the wider public. Amongst these have been Earth Day (twice), Biodiversity Day (once), and the National Wildlife Day/New Year celebration (thrice). The latter has become an institution in Palu, and draws larger crowds than any other venue on New Year's Eve. Participants include a mix of organizations, including NGO and government (BKSDA, BTNLL, Bappedalda) and activities include theater, music, painting competitions, drama, quizzes, puppet shows, outdoor displays, exhibitions, live radio broadcasts etc..

A selection of other events are tabulated below:

Event	Date	Notes
Conservation campaign in Palolo	June 1999	YPAN with Kopelindu
Lore Lindu Climbing Wall	March 2000	BKKPA, used at several outdoor events
Ethnic music festival, Besoa	November 2000	Attended by 99 participants in an environmental dance competition

Ethnic music festival, Palolo	December 2000	64 participants from 6 villages, conservation songs competition
Ethnic music festival, Kulawi	December 2000	87 participants from 10 villages
Trekking LLNP	June 2001	37 conservation groups; TNC with KPA Wanagaul Strepak
Trekking CA Pangi Binanga	October 2001	23 conservation groups; TNC with BKKPA and UGH
Conservation Games Day, Kapiroe	October 2001	Kapiroe Primary school, with TNC
Museum Visit, SD Sintuwu	October 2001	Sintuwo Primary School with TNC
Scouts Camp, Watunonju	December 2001	250 scouts, conservation instruction
Open-air prayer service, Tumbelaka	December 2001	Sion Church Kamarora
Conservation Training, Omu	December 2001	Omu Sunday School, 50 participants

On 8-9 December 2000, a LLNP conservation training session was held for 60 students from Palu, in the meeting hall of the Palu City legislature. This was followed by a seminar with members of the legislature, attended by 40 persons including 6 legislature members. One finding from this was that general knowledge about conservation within the legislature is low.

d) What did the campaign achieve?

To measure the effects of the campaign, a baseline survey was undertaken in November 1998, using questionnaires designed during the RARE workshop. A second survey was undertaken in November 2001, with the assistance of partners from FKTNLL. A total of 1000 people were surveyed from 25 villages within Palu, and 3 villages from each of the 6 Sub Districts around the Park, to match survey distribution from 1998. Findings were that there had been an increase in awareness of the Park from 57% to 81%, or 23% rise over the three years of the campaign. The greatest rise has been amongst members of village communities, where there was an awareness level of 92%.

It is difficult to attribute this entirely to the campaign, but it must have been a factor in the rising awareness. Newspaper articles, radio shows, and TV talk spots all have contributed to raise awareness of the Park. However, the biggest influence appears to be the spoken word, as shown in the table below.

Source of knowledge	Percent of respondents
Word of mouth	41 %
From BTNLL rangers	26%
Newspapers or magazines	26%
Poster	24%
Radio	19%
Comic books	9%
Other sources	4%

IR V. Communication

Objective: Promote the replication of successful conservation strategies developed at Lore Lindu National Park by PHKA, YPAN, local NGOs, and TNC.

Activity 1.

Production of reports, articles, and audio-visual materials documenting successful conservation strategies and dissemination of information at appropriate venues.

A presentation on the Honey Hunters Agreement, ("Kesepakatan Pemburu Lebah Madu, Suatu Proses", by Hudiyono, Sugiyani, and Neville) developed during the BCN micro-enterprise project, was presented by M.Z.Hudiyono at the Sukabumi Workshop for National Park Managers at Lido on 24-25 September 1998. The cases of Butterfly Farming at Kamarora and Honey-Hunting at Watutau were presented at a workshop on non-timber forest products convened jointly by CIFOR and the Leuser Development Program between 22-26 February 1999, by the Head of BTNLL (at that time M.Z.Hudiyono) and Duncan Neville.

Three members of the FKTNLL - Zarlief (Yayasan Jambata), Juanda Idris (YPAN), and Helmi (BTNLL) - attended the National Meeting for Coordination and Development of Young Nature Lovers (*Rakornas Gempala*) sponsored by Department of Forestry and Plantations, at Tretes, between 17-20 November, where they distributed information about

FKTNLL, and its function in coordinating and enthusing various groups in support of the National Park.

The Site Conservation Planning methodology was presented to a TNC-wide audience at the TNC Conservation Training Week in Miami, between 18-22 June 2001. The presentation by Ir. Ismet Khaerudin was very successful, and the consultative methodology developed at Lore Lindu will be included as a chapter in the TNC handbook on SCP to be published in 2002. A roundtable on the methodology is planned for June 2002.

The Guidebook to Lore Lindu National Park (Ellis, Brown, Meyer) has been produced in two languages, and is being distributed in 2002. It is planned that the guidebook will be given to a selected range of stakeholders, and the remainder sold with proceeds going to FKTNLL. Books have already been taken on sale or return basis at Periplus in Makasar Airport.

The Guide to the Flora of Lore Lindu National Park (Wiriadinata, Suharjono) has been drafted and should be published in Indonesian only, in June 2002.

Developments under the NRM II grant were presented to a wide audience on 10 December 2001 at the Ibis Hotel, Slipi, as part of the Ministry of Forestry evaluation for international NGOs.

A presentation was held at Ratu Plaza Building on 14 February 2002, to a number of major stakeholders, including NRM II directors. The Lessons Learned document was also distributed at this meeting.

APPENDIX I

IR Indicators

IR1.1 Number of advances along Policy Index

Remarks and recommendations
• Key parts of the Central Sulawesi Integrated Area Development and Conservation Project (CSIADCP) have not been implemented successfully (or at all), and there is a likelihood that this project will be closed in calendar year 2002. CSIADCP have not carried out planned biodiversity studies, nor established buffer zone forums. Although village facilitators are now in place, no community development funding has been released. The probability that CSIADCP will continue to implement methodologies for community conservation agreements seems small. • The wording 'Threat Analysis' is inappropriate in the current socio-political climate of Central Sulawesi. The wording 'Interaction Analysis' is more neutral and more easily accepted. It also allows for development of a more positive of community involvement in resource use planning. • Communities were involved in collecting field data on the area of their land holdings outside LLNP and on coffee plantations within it. GPS units provide simple, effective, and efficient means to collect data and prepare easily understandable maps for local communities. • The village of Omu requested mapping of their coffee plantations following a discussion on erosion and flood problems at their village, 18 September 2000. This was carried out by BTNLL staff as a training activity. • Village leaders requested accurate mapping be prioritized for LLNP after a presentation during meetings facilitated by Yayasan Tanah Merdeka, Toro, 28-29 September 2000. To date 13 villages have been mapped in whole or part, and these maps require to be reviewed and upgraded as part of the Community Conservation Agreements. • A GEF/UNDP proposal was researched throughout May-July 2000. A widely attended stakeholder workshop affirmed the importance of a community/economic approach to conservation in Central Sulawesi. • A draft zonation plan was developed in December 2000, and has been included in the draft Lore Lindu 25-Year Management Plan • The TNC Site Conservation Planning (SCP) methodology was adapted for use as a tool for village consultations, and seven consultations held in areas around the Park. Results provided excellent inputs to the 25-Year Management Plan for Lore Lindu. The methodology is being utilized at TNC's newest site in East Kalimantan, and perhaps will be used at other sites throughout TNC's global portfolio of sites. • The draft Lore Lindu 25-Year Management Plan was presented to stakeholders in Palu on 28 November 2001, and a final draft submitted to Balai TN Lore Lindu on 20 February 2002. A fourth volume has been added as a stakeholder summary. • Community Conservation Agreements have been prepared for 5 villages in Lore Utara Sub-district. As of March 2002 these documents are awaiting signature by the Bupati of Poso District.

IR2.1 Number of targeted institutions exceeding 2.5 on the Institutional Development Framework

Remarks and recommendations
• The Forum Kemitraan Lore Lindu lost some ground due to a demonstration by some member organisations against the National Park authority, protesting weak enforcement. The BTNLL no longer attend the Forum in an official capacity, indicating the need for Forums to be neutral and non-confrontational. • The FKTNLL has a Board, but this needs to be more active. A secretariat has been re-established since November 2001. Several IDF indicators do not apply. • Activities are carried out by member organisations, or *ad hoc* coalitions of individuals or organisations. The aim is to avoid the Forum becoming another implementation agency and superceding the role of its members. • FKTNLL is now running a news cutting service, an internet group server, and publishing a monthly bulletin on Lore Lindu National Park. • TNC has been working with other partners to build capacity through programmatic training. In many cases there is no formal framework, but the process has been useful in assisting the development of partners. These include : Yayasan Jambata, Yayasan Katopasa, Yayasan Yakobang, Yayasan Pekurehua, LPSL, Yayasan KayuRiva, BKKPA, LPSL, and Awam Green. All but the last named are members of FKTNLL.

IR1.1 Number of advances along Policy Index

No	Name of Policy / Initiative	Level of Impact	Policy Initiatives completed this year Type YES for all that apply (see Note)					Total
			A*	B*	C*	D*	E*	
1	Appointment of TNC to Project Coordinating Committee of CSIADCP, December 1999 (Code 1,2,3)	Provincial	YES	YES				2
2	Testing of Interaction Analysis	Local	YES					1
3	Community mapping of land use patterns for thirteen villages (Kamarora A, Kamarora B, Kadidia, Sedoa, Wuasa, Watumaeta, Kaduwaa, Betue, Watutau, Siliwanga, Talabosa, Rompo) abutting Lore Lindu National Park	Local		YES	YES			2
4	Preparation of GEF/UNDP proposal - research and stakeholder analysis August 2000.	Provincial	YES	YES	YES			3
5	Adaptation of Site Conservation Methodology as a tool for community consultation	National	YES	YES	YES	YES	YES	5
6	Development of Community Conservation Agreements	Provincial	YES	YES			YES	3
7	Development of Zonation model	Provincial	YES	YES				2
8	25-Year Management Plan for Lore Lindu National Park	Provincial	YES	YES			YES	3
9								0
10								0
11								0
12								0
13								0
14								0
15								0
16								0
17								0
18								0
19								0
20								0
21								0
22								0
23								0
24								0
25								0
26								0
27								0
28								0
29								0
30								0
							Total	21

54

IR2.1 Number of targeted institutions exceeding 2.5 on the Institutional Development Framework

Remarks and recommendations
• The Forum Kemitraan Lore Lindu lost some ground due to a demonstration by some member organisations against the National Park authority, protesting weak enforcement. The BTNLL no longer attend the Forum in an official capacity, indicating the need for Forums to be neutral and non-confrontational. • The FKTNLL has a Board, but this needs to be more active. A secretariat has been re-established since November 2001. Several IDF indicators do not apply. • Activities are carried out by member organisations, or *ad hoc* coalitions of individuals or organisations. The aim is to avoid the Forum becoming another implementation agency and superceding the role of its members. • FKTNLL is now running a news cutting service, an internet group server, and publishing a monthly bulletin on Lore Lindu National Park. • TNC has been working with other partners to build capacity through programmatic training. In many cases there is no formal framework, but the process has been useful in assisting the development of partners. These include : Yayasan Jambata, Yayasan Katopasa, Yayasan Yakobang, Yayasan Pekurehua, LPSL, Yayasan KayuRiva, BKKPA, LPSL, and Awam Green. All but the last named are members of FKTNLL.

IR2.1 Number of targeted institutions exceeding 2.5 on the Institutional Development Framework

No	Name of all organizations using IDF	Type of organization	Initial IDF Score	Year achieved >= 2.5
1	Forum Kemitraan Lore Lindu - Sept 2001	NGO-Indonesian	1.447	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
	Total			

IR2.2 Number of individuals participating in USAID-assisted training and workshops (gender disaggregated)

Remarks and recommendations
• Programmatic training has proved a very effective way of transferring skills to Non-Government Individuals and National Park staff. • Training followed by selection procedures and efforts to utilise the relevant skills immediately has enabled development of a core of enthusiastic and active NGIs. • Attempts are made to match the needs of visiting consultants with partners and local skills to maintain development opportunities. All TNC consultants are matched with local counterparts (NGI, or National Park, or both). • Individuals or groups undertaking training, research, or attending inter-province workshops, are required to present to the FKTNLL to enable sharing of experiences and knowledge. • Site Conservation Planning workshops have been held in eight locations around the park and in one provincial workshop. • A total of 8 multi-stakeholder workshops have been implemented on various topics to design inputs for the 25-Year Management Plan. • Yayasan Jambata implemented a workshop to discuss maleo bird conservation in key villages, based on their NRM II sponsored survey of the Park. The workshop may lead villages to develop a conservation agreement. • GIS Training – 8 BTNLL staff, 2 from BKSDA • GPS Training – 20 BTNLL staff, 4 from BKSDA; around 30 NGO members involved in programmatic training. GPS units are regularly borrowed and used by NGOs in carrying out their fieldwork activities. • The Bird and Small Mammal survey teams were trained in data analysis at a workshop led by a senior Australian ecologist, in June 2001. This programmatic training worked up the data obtained from 18 months field work at Lindu to produce some of the best data for a national park in Indonesia or Australia (Dr. Ric How, 5/01) • A workshop on Illegal Logging held 2-3 May 2001 in the Dinas kehutanan Office attracted many varied participants. This workshop presented data from studies funded through NRMII into logging practices around the park. It resulted in a declaration of intent to form a multi-stakeholder working group at the provincial level, which process was supported by the Governor in a letter to Forestry Minister dated 26 July 2001. • Draft management plan presented on 28 November 2001 to wide range of stakeholders • From August to December 2001, a series of workshops to develop and improve conservation agreements at 5 villages in Lore Utara Sub District, each village having a committee composed of representative village groups including women, youth, traditional groups, ethnic minorities

IR2.2 Number of individuals participating in USAID-assisted training and workshops (gender disaggregated)

No	Name and purpose of event	No of participants	
		Women	Total
1	Hari Cinta Puspa, 29-31 December 1999	100	400
2	Introduction to GIS, 31 January - 9 february 2000	1	5
3	Using the GPS, 10-14 April 2000	2	26
4	Vegetation Type identification, Jan-April 2000		3
5	Development of Sermon Sheets, 7 March 2000	5	27
6	Interaction analysis methods testing, May 2000	1	8
7	Landscape analysis of Lore Lindu National Park, William Moire	5	15
8	Mammal and Bird Survey Training - June 2000	4	17
9	Dialogue between CSIADCP/Bappeda and Kamarora A, B, and Kadidia, June 2000	6	30
10	Scoping Study of Potential Alternative Livelihood Activities, Bary Ison	0	3
11	Small mammal surveys - 2/00 - 6/01	1	11
12	Bird surveys - 2/00 - 6/01	1	8
13	Large Mammal Surveys - 4/01 - 6/01	0	14
14	Site Conservation Planning workshops (8) - 02/01 - 06/01	51	183
15	Vegetation Survey Training and field-work 2001	0	12
16	GIS training - 7/01	0	10
17	GPS Training - 5/01	0	54
18	Jambata Maleo Conservation Workshop	3	35
19	Series of 8 workshops for developing 25-Year Management Plan May- September 2001	23	153
20	Data Analysis workshop, Bogor, June 2001	0	13
21	Draft Management Plan Presentation workshop, Bogor, 7/01	4	35
22	Illegal Logging Workshop, May 2001	15	90
23	Presentation of Draft 25-Year Management Plan, 28 November 2001	25	40
24	KKM WORKSHOPS - 10 committee members from each village, plus wider cross section of community	40	100
25			
26			
27			
28			
29			
30			
	Total	287	1,202

Remarks and Recommendations

58

IR3.1 Number of publications, articles and audio-visual materials documenting NRM lessons learned that promote replication of NRM best practices

Remarks and recommendations
• Conservation events have proved a very popular way to involve local NGO groups from Palu in conservation awareness activities in the villages. Individual drive and charisma is important in this respect (e.g. head of Katopasa Indonesia, Alimuddin Paada). • Attempts should be made to develop a graphic art capacity in the provinces to service project requirements. Local production is a cheap and effective option. • A needs analysis and distribution plan should exist before materials are published, to ensure effective flow to the consumer (public). • A niche exists for FKTNLL to sell books on LLNP and retain profits for operating costs. FKTNLL is also beginning to build an image library and has started to sell them to other parties (March 2002)

IR3.1 Number of publications, articles and audio-visual materials documenting NRM lessons learned that promote replication of NRM best practices

No	Name / purpose of media material	Type of Media
1	FKTNLL and its role in increasing involvement of Nature Lovers' Groups(Rakornas Gempala), 17-20 November 1999	Paper/Report (sch
2	The Conservation Awareness and Education Program at LLNP (Rakornas Gempala), 17-20 November 1999	Paper/Report (sch
3	Hari Cinta Puspa (Wildlife Lover's Day) Event on New Year's Eve 2000 and broadcast live on RRI, 31 Dec. 1999	Event
4	Allo Allo comic book, 1 January 2000	Books
5	Sermon Sheets - Christian and Moslem, March 2000	Pamphlets/brochu
6	A checklist of the Birds of Lore Lindu National Park, 1999	Pamphlets/brochu
7	Yayasan Katopasa/Erin Riley – Macaque Survey, June 2000	Paper/Report (sch
8	Hari Cinta Puspa (Wildlife Lover's Day) Event on New Year's Eve 2001	Event
9	Survey of the status of Maleo in Lore Lindu (Indonesian), July 2001	Paper/Report (sch
10	Large Mammal Distribution and Abundance in TN Lore Lindu, October 2001	Paper/Report (sch
11	Site Conservation Planning, An alternative methodology for community participation, June 2001	Paper/Report (sch
12	Distribution and biodiversity of birds at LLNP, September 2001	Paper/Report (sch
13	Distribution and biodiversity of small mammals at LLNP, October 2001	Paper/Report (sch
14	Survey of Vegetation types in LLNP, October 2001	Paper/Report (sch
15	Yayasan Kayu Riva – Demographic Study of communities around Lore Lindu National Park July-September 2001;	Paper/Report (sch
16	Danang Widjajanto (Lecturer, Universitas Tadulako) – Study of the Water Catchments of Lore Lindu, October-November 2001;	Paper/Report (sch
17	Yayasan Katopasa – Megalith Survey, April-June 2001	Paper/Report (sch
18	Abdul Rahim Thaha (Lecturer, Universitas Tadulako) – Study of Soil Erosion at Lore Lindu, October-November 2001;	Paper/Report (sch
19	FKTNLL – Location Of Community Damar Trees In Lore Utara, November 2002	Paper/Report (sch
20	FKTNLL – Study Of Sawmills Operating In Palu, November 2002	Paper/Report (sch
21	Burton - Large Mammals Distribution Survey	Paper/Report (sch
22	Guidebook to Lore Lindu National Park (English and Indonesian)	Books
23	Allo Allo II comic book, 1 November 2000	Books
24	Water Resources of Lore Lindu National Park (Deschamps)	Books
25	Water resources poster	Posters
26	Hari Cinta Puspa (Wildlife Lover's Day) Event on New Year's Eve 2001	Event
27	Lessons Learned from Building Conservation Capacity and Partnershipsat Lore Lindu Natoinal Park (Hartman) Jan 2002	Paper/Report (sch
28	The Guide to the Flora of Lore Lindu National Park (Wiriadinata, Suharjono) Draft	Books
29	Community Conservation Agreements (5), January 2002	Paper/Report (sch
30	FKTNLL - Svara Lore Lindu (monthly newsletter started Jan 2002)	Newsletters
31	FKTNLL - Listserve (since March 2001)	Paper/Report (sch

60

IR3.1 Number of publications, articles and audio-visual materials documenting NRM lessons learned that promote replication of NRM best practices

32	Kesepakatan Konservasi Masyarakat di 5 Desa sekitar TN Lore Lindu, Sulaweis Tengah (TNC LLFO/Khaeruddin, Ladasi, Tungka, Zarlief, Atun, Kindangen)	Paper/Report (sch
33	Pendidikan dan Penyadaran Konservasi & Hasil Pelaksanaan Survey Persepsi II tentang TN Lore Lindu (TNC LLFO/Sugiyani, Abubakar, Idris)	Paper/Report (sch
34	Monitoring Sumber Daya Alam Desa sekitar Taman Nasional Lore Lindu (TNC LLFO/Umar)	Paper/Report (sch
35	Laporan Hasil Kegiatan Pemetaan Tata Guna Lahan di 13 Desa di sekitar Kawasan Taman Nasional Lore Lindu, January 2002 (TNC LLFO/ Ladasi, Agus, Tungka, Wolok)	Paper/Report (sch
36		
37		
38		
	Total = 29	

Remarks and Recommendations

61

SO.a Total area of USAID-assisted sites where condition of the targeted natural resource is stable or improving as a result of best practices being implemented.

Description of best practices
• Negotiation of written agreements on resource use between local communities and the national park authority (BTNLL). • Community involvement in mapping resource use using data collected on the ground with GPS technology, currently first draft completed in 13 villages. • Community consultations using adapted Site Conservation Planning methodology to establish attitudes towards the Park and community values for natural resources, leading to agreed and prioritized conservation actions. Provided excellent input to the 25-Year management plan • Multi stakeholder steering committees were extremely useful when starting Site Conservation Planning process •

Remarks and recommendations
• Agreements on access to the park were formalised in a written letter, and in identity cards (Surat Ijin Pemanfaatan - SIPMAN) for honey hunter members at Watuatu. • Agreements were replicated for access to Protection Forest at Winowanga, the relevant authority being Dinas Kehutanan II Poso. • Community members accompanied staff in surveys, where they walked boundaries, mapped land use patterns, and marked village boundaries. • Community agreements signed for 5 villages • CARE Sulteng committed to develop 45 more agreements over 5 years •

The Nature Conservancy

SO.a Total area of USAID-assisted sites where condition of the targeted natural resource is stable or improving as a result of best practices being implemented.

No	Site / Location	No of hectares 1999/2000 - US FY Actual - Non Cumm
1		
2	Protected Forest at Winowanga (honey hunters)	663
3	Production Forest and Production Forest at Watutau and Winowanga (honey hunters)	156
4	Mapped community land-use patterns in 13 villages	29,200
5	Community Conservation Agreements in 5 villages	18,000
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
	Total	48,019

63

SO.b Total area where NRM-tested best practices are being replicated by others and has lead to stability or improvement of the targeted natural resource.

Description of best practices
• Formation of a network of NGO organisations, individuals, and government agencies, in support of a protected area. • TNC at Berau District East Kalimantan, is implementing a consultative process using SCP methodology before designing conservation activities. The actual area of impact is still to be determined. • Community Conservation committees established in each village democratically to represent all stakeholders when developing CCAs • Lawyers brought to communities to give practical briefings on legal aspects of CCA

Remarks and recommendations
• Yayasan Sahabat Morowali in establishing a constituent network to support Morowali Nature Reserve. • Dissemination of SCP methodology is an active process – SCP field supervisors went to Samarinda in September to train the TNC Berau team. • It is easier to maintain NGO membership than GOI membership. • Traditional leaders are attempting to develop Community Conservation Agreements at Lindu, but it is difficult to say if this is a response to environmental issues, or an attempt to influence actions of newcomers/immigrants to the area. • CARE Sulteng are planning to develop 45 CCA over 5 years, but initially starting in Kulawi Sub District which lies in a different District to existing CCAs developed by TNC. BTNLL needs to be more active in defining the general format for CCA and to form a monitoring committee to oversee this new initiative in management

SO.b Total area where NRM-tested best practices are being replicated by others and has lead to stability or improvement of the targetted natural resource.

No	Site / Location	No of hectares 1999/2000 - US FY Actual - Non Cumm
1	Morowali Nature Reserve, Central Sulawesi	225,000
2	Berau District, East Kalimantan - SCP Planning	
3	Lindu Communities developing CCA themselves	14,600
4	Jambata starting CCA in 4 villages around Pakuli	14,600
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
	Total	254,200

65

APPENDIX II

Threat Analysis for Lore Lindu National Park

Threat Analysis for Lore Lindu National Park

The Nature Conservancy Lore Lindu Field Office supporting CSIADCP

26 February, 2002

This document represents conclusions drawn from the results of TNCs work using the USAID/NRM II grant # 497-G-00-99-00004-00 and was written for the purpose of presenting to the CSIADCP monitoring program being carried out with the assistance of CSIADCP consultant Mr. Dennis Goonting. The first part answers several questions related to the CSIADCP program [and the second part is in a separate Appendix for ease of reading].

Part 1 – MONITORING CSIADCP RESULTS

1. Change Analysis.

TNC Lore Lindu Field Office has performed a study on the rate of change of forest cover for Lore Lindu National Park and surrounding forests. This study used remote sensing methods and analysis of Landsat satellite images from the years 19983, 1999, and 2001, to identify changes in the area of canopy cover. Although this method works at relatively course resolution, it is still a cheap and effective way to monitor canopy cover over the whole protected area. Hardware and software bought with the grant NRM2. (Grant No. 497-G-00-99-00004-00) has been donated to the Balai TN Lore Lindu to manage, and ongoing funding sources are being sought. A proposal was submitted to CSIADCP in November 2001 but there has been no reply to date.

Results of the study show that the total area of forest cover that has been opened inside the Park (1,877.83 Ha.) is less than 1% of the total Park area (217,991.18 Ha.). However, the rate of change has increased 5.6 times in the last two years. This does not exclude the possibility that there has been some degradation underneath the canopy, which is not easily detected by remote sensing.

The report *Analisa Perubahan (*Change Analysis*) Hilangnya Tutupan Tajuk di Taman Nasional Lore Lindu Menggunakan Interpretasi Citra Satelit Landsat,February 2002,* is available separately, and a summary of conclusions is presented in Table 1 below.

Table 1. Rate of change in forest cover at Lore Lindu National Park

Year	Area of forest cover lost (Ha.)	% total forest cover	% change per month
1983-1999	1,209.49	0.55%	0.0029 %
1999-2001	668.34	0.30%	0.0161%
TOTAL	1,877.83	0.86%	0.0039%

The maps clearly show that the areas most at risk of change are Sibalaya-Salua (Sigi Biromaru), along the Palolo boundary, Dongi-dongi (clearing along the Palolo-Napu road), Tuare (Lore Selatan), and Dodolo. The major factors appear to be large population size, rapid population growth rates, and ease of access to the protected area.

Besides this study, TNC has also carried out transect studies at 24 locations around the boundaries of LLNP. These studies give a more detailed picture of forest disturbance patterns from the boundaries into the forest until primary forest is reached. The results of observations (still under analysis) support findings from the GIS survey, and give a finer scale picture of the causes of forest disturbance. Changes that cannot be traced by GIS analysis can also be detected, for example plantings of cacao and coffee under the canopy, rattan harvesting, and small scale tree felling.

However, the transect studies are relatively expensive, difficult to analyze, and only very local in application. Observations are most useful at the village level, for example to provide information that supports Community Conservation Agreements.

Observations and monitoring at the project level, or for decision-makers, is best done using a regular GIS study, say every two years.

2. Results of the NRM II Program

Activities carried out by TNC with assistance from the NRM II grant already have made significant impacts for conservation at LLNP. Results are tabulated [in Appendix III], but a brief summary is as follows:

a. A draft LLNP Management Plan has been prepared, and submitted to BTNLL, for distribution to several stakeholders for review. The Management Plan consists of three volumes, with the addition of one extra volume (IV) as a summary which is more easily accessible for a wide range of stakeholders. This Management Plan is more complete than previous plans, as it contains results of studies on bird and small mammal distribution, and suggests several strategies for facing real threats to LLNP.

b. One of the most important strategies is the suggestion that some form of Collaborative Management is implemented. TNC has prepared a proposal for this, in accordance with CSIADC budgets, but no supporting funds have been released.

c. Drawing up of the Management Plan involved many stakeholders, particularly communities around the Park, by using a consultation tool called the Site Conservation Planning [adapted] tool (full results are presented in Volume 3 of the Plan). This SCP methodology is also extremely useful in developing Community Conservation Agreements (CCA). An SCP Handbook has been written and is available for use by other agencies in a CCA approach.

d. CCAs have been established in 5 villages in Lore Utara Sub district. This can be seen as the foundation for collaborative management in the future, and the format is suitable for strengthening as district legislation (*Perda*). This CCA format represents a model for other CCA developments around LLNP, for example CARE have a program to develop 45 CCAs over a five-year period (2002-2007). The process of achieving CCAs requires at least 6 months per village, and requires intensive accompaniment by a dedicated staff member responsible for a particular village. At this time, all 5 CCA are being discussed by PHKA.

e. A GIS Facility has been established, which can usefully support efforts to monitor the health of forests in LLNP. Also available is baseline data and simple procedures to carry out monitoring at village level using transects.

To support the conservation efforts above, there are several things that could be addressed by CSIADCP, particularly:

f. Allocation of funds to Village Conservation Councils, and Kecamatan Conservation Forums, so that these organizations can be established and will have some operational funds.

g. Community Facilitators should support Village Conservation Councils and assist in the process of organizational strengthening (capacity building), for instance by carrying out organizational training, and facilitating the Village Conservation Council to review all development plans so that they do not have deleterious effects on the Park.

h. Allocate funds for monitoring, especially for monitoring at village level using the transect approach.

There have been several difficulties that are apparently hampering CSIADCP's ability to carry out effective conservation activities at LLNP, including:

i. There is an apparent difficulty in making funds available, including for activities which have already been budgeted, for example Buffer Zone Forum etc.. This was extremely influential in Kamarora A and B, where TNC-YPAN activities were

stopped because CSIADCP village development funds were not released, and the villagers refused all activities related to conservation and protected areas.

j. We strongly doubt the capacity of Community Development Facilitators to perform a CCA program, considering their low level of experience, skills, and commitment (they are generally not local staff, and salaries are low), and limited operational funding (Facilitators often spend their personal money to fund meeting expenses).

k. Coordination with other agents is very weak, particularly with BTNLL and other conservation organizations. As an example, workplans for Community Development Facilitators have never been shared with villages, or other agents.

Because of these facts, we are forced to conclude that it is best for CSIADCP not to continue a Community Conservation Agreement program, but that CSIADCP could support conservation monitoring – either by GIS or by village level transects - and by providing funds for the Village Conservation Councils and Kecamatan Conservation Forum (an alternative to the Buffer Zone Forum), as concrete steps in creating a Collaborative Management system for LLNP.

3. Identification of threats

Through the process of Site Conservation Planning (SCP), TNC has identified several threats to LLNP, as presented in Table 2.

During the SCP process, several ecological systems were identified as being important – these systems could be important species, important habitat types, or even ecosystem functions. For each system, major threats were identified, and an assessment was made of the effects of these threats on every system. If one threat has effects on several systems, then the threat will be counted several times.

The resulting threat rankings are presented in Table 2.

Some important points are as follows:

a. Clearance of forest land for agriculture mainly occurs in lowland forest and lower montane forest, and occurs at a small scale compared to the total Park area, but its effects are extreme on the existing systems;

b. Road construction has large effects notably from the point of view of habitat destruction, but also because it improves forest access and allows other damaging activities to occur;

c. Illegal logging also has greater effects than just felling of chosen trees, as the tendency is also to open the forest for agriculture and plantations.

So far, only one threat has been measured objectively, that is the opening of forest for agriculture, monitored by GIS analysis of forest cover (Point 1). It is clear that this threat has increased 5 times in the last two years.

Subjectively, it has to be said that all identified threats have probably increased alongside large growth in population, accessibility, and community needs to enter the *cash economy*.

The causes of this threat are extremely wide, but one of the main factors is probably rate of population growth, which averages 2% per year. At several sites around LLNP, the number of villagers has actually doubled in the last ten years (demographic study performed by Yayasan Kayuriva, as presented in the Change Analysis report).

During the SCP consultation process at 7 locations around LLNP, using the adapted SCP tool, community perceptions were different to 'scientific' opinions. The ranking was as follows:

1. Illegal logging
2. Forest Clearance for agriculture
3. Rattan Harvesting
4. Hunting and snares
5. Population growth
6. No alternative income sources
7. Pollution
8. Unregulated natural resource use
9. Natural processes
10. Increased value (ref. Draft Lore Lindu Management Plan, Volume 3).

Although the level of threats has not been measured, the quality of all selected systems (56 in total) has been declining drastically (with the exception of cacao gardens!)

One thing that has had a major effect on the interaction between communities and the forest, is that there are several extremely obvious cases which have not been resolved. The opening of Dongi-dongi must fall in this category, where it is seen as a 'mascot' by other communities that want to open the forest for their own benefit. Their reasons are very simple, if other persons can do this without sanctions, then all other communities should be able to do similar things.

This is a major difficulty in establishing Collaborative Management, as communities do not see the importance of supporting LLNP if government agencies (in this instance BTNLL and Pemda) are unable to control very obvious destructive practices.

Table 2. Ranking of threats to major ecological systems at Lore Lindu National Park (2001)

Major Threats	Ecological System									
	Montane Forest	Maleo	Water catch-ments	Lowland Forest	Heath Forest	Lower Montane Forest	Hunted animals	Rattan	Ranking	Total Score
Clearing of agricultural land	High	Low	Medium		-	High	Medium	Medium	High	4.32
Cash crops	High	Low	Medium		-	High	Low	Medium	High	4.23
Road and infrastructure developments	-	-	-		Low	High	Medium	-	High	3.62
Local consumption	-		-	-	-	-	High	Low	High	3.52
Illegal Logging	Medium	-	Medium		-	Medium	Low	Low	High	3.33
Introduced species	-	-	-		-	Low	-	-	High	3.02
Edge effects	-	-	-		-	-	-	-	High	3.00
Commercial hunting	-	-	-	-	-	-	High	High	High	2.00
Dwelling construction	High	-	Medium	-	-	-	Medium	-	Medium	1.40
Rattan collecting	Low	-	-	Medium	-	Medium	Low	-	Medium	0.46
Fishponds	-	-	Medium	-	-	-	-	-	Low	0.20
Hydro-electric dam	-	-	Medium	-	-	-	-	-	Low	0.20
Threat status per ecological system	High	High	Medium		Low	High	High	Medium		

[1] per Loan Covenant; Park and Buffer Zone Management (sumber: PAM Feb.1998)
[2] per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (peran TNC tidak ditentukan)
[3] per Grant Document USAID/TNC (15 Jan. 1999) dan Workplan USAID/TNC

APPENDIX III

Comparison between CSIADCP and TNC Objectives

A Comparison between ADB/CSIADCP Loan Agreement and USAID/TNC Grant Award

15 March 2002

Part B1 – Park Management

ADB/CSIADCP Objectives	USAID/TNC Objectives[3]	TNC Achievements	Future steps	Notes
1) Five-year workplan for Lore Lindu National Park [1,2]	Strengthen PKA skill in Park Management • Update the LLNP 25-Year management plan	• Draft plan in four volumes submitted to BTNLL, March 2002	• Review of plan locally and by PHKA • Revisions to plan as required	• Volume IV of the plan is a new concept, aimed to allow better distribution and understanding of the management plan.
2) Village Conservation Agreements [1,2]	Develop strong contractual linkages between (in Park) resource use and conservation objectives • Conservation Agreements in 3 villages	• Community Conservation Agreements (KKM) finalized for 5 villages in Lore Utara SubDistrict (Sedoa, Wuasa, Kaduaa, Watutau Betue)	• KKM has been submitted to DirJen PHKA for review • CARE Sulawesi Tengah plan to develop 45 KKM over five years using similar methods	• No target figure is specified in ADB/CSIADCP documents • KKM is projected to become District law (*Perda*) and has been developed as a format document with appendices for each villages' individual conservation plan

[1] As per Loan Covenant; Park and Buffer Zone Management (source: PAM Feb.1998)
[2] As per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (this document does not specify TNC's role)
[3] As per USAID/TNC Grant Document (15 Jan. 1999) and USAID/TNC Workplan

ADB/CSIADCP Objectives	USAID/TNC Objectives[3]	TNC Achievements	Future steps	Notes
3) Extension of pilot micro-enterprise program [1,2]	Develop local and PKA expertise in compatible enterprises • Expand compatible enterprise programs	• Enterprise development program de-linked from conservation agreements • Tree planting program in Lore Utara and Lore Tengah	• World Education is implementing farmer training schools in rice production (Feb-Jun 2002)	• A program for cacao commodities enterprises disallowed by BTNLL • Overlap with many agencies in this field (CSIADCP, TNC, CARE, GOI Tk I. Tk II)
4) Traditional use zones as part of management system [1,2]	Strengthen PKA skill in Park Management • Mapping system of zones and boundaries for 12 villages	• Draft zonation map prepared • Land Use maps available for 13 villages	• Zonation map to be upgraded as specific village inputs become available	• The full zonation map requires significant local input via KKM consultations to finalize usage boundaries
5) Zoning and Trail maps [1,2]	Strengthen PKA skill in Park Management • Equipment and training to BTNLL for GIS mapping	• GIS facility developed and granted to BTNLL • BTNLL staff able to take field GPS readings (@ 20) and print GIS based maps (2)	• Funding for GIS facility to be shared between various parties (BTNLL, CARE, STORMA, TNC) • User pays system to be developed	• GIS has proven very effective in supporting mapping, and as a cheap and effective monitoring tool

[1] As per Loan Covenant; Park and Buffer Zone Management (source: PAM Feb.1998)
[2] As per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (this document does not specify TNC's role)
[3] As per USAID/TNC Grant Document (15 Jan. 1999) and USAID/TNC Workplan

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ADB/CSIADCP Objectives	USAID/TNC Objectives[3]	TNC Achievements	Future steps	Notes
6) Training of Park personnel in enforcement [1, 2]	Build conservation capacity amongst CBO, NGO, BTNLL to manage resources of Lore Lindu NP • Training program on LLNP ecology and conservation	• On the job training provided in field research and community relations • - 30 BTNLL staff • 15 LSM members • 15 community members	• Training program urgently required for BTNLL staff in Collaborative Management	• USAID regulations prohibit use of grant funds to support direct enforcement activities
7) Park boundary and inventory monitoring system [1, 2]	Develop and implement monitoring and evaluation programs to track resource use	• A monitoring protocol for village based resource monitoring developed • Base-line monitoring at 24 villages completed • Change analysis on forest cover 1983-2001 completed	• CARE has developed monitoring protocols from Philippine projects • Change analysis should be performed every 2 years minimum	• Transect data available for baseline analysis

[1] As per Loan Covenant; Park and Buffer Zone Management (source: PAM Feb.1998)
[2] As per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (this document does not specify TNC's role)
[3] As per USAID/TNC Grant Document (15 Jan. 1999) and USAID/TNC Workplan

ADB/CSIADCP Objectives	USAID/TNC Objectives[3]	TNC Achievements	Future steps	Notes
8) Buffer Zone Forums [1,2]	Engage local NGOs and government agencies in management of LLNP and surrounding community development activities • Support *Forum Kemitraan TNLL* as stakeholder forum	• Buffer Zone Forums are part of the KKM document, but none so far exist • Proposal to CSIADCP to release funds November 2001 (no response)	• Continued support for FKTNLL and members by TNC	<u>FKTNLL is not a Buffer Zone Forum</u> PAM is confusing; both TNC and Buffer Zone specialist are expected to assist the Camat in establishing Buffer Zone Forums, all funds are with the CSIADCP
9) Provide mapping equipment and vehicles [2] (CSIADCP program)		• 5 GPS units provided by BANGDA using TNC specifications • Training for BTNLL and BKSDA staff in use of GPS		

[1] As per Loan Covenant; Park and Buffer Zone Management (source: PAM Feb.1998)
[2] As per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (this document does not specify TNC's role)
[3] As per USAID/TNC Grant Document (15 Jan. 1999) and USAID/TNC Workplan

ADB/CSIADCP Objectives	USAID/TNC Objectives[3]	TNC Achievements	Future steps	Notes
10) Inventory and ecological studies[2]	Develop and implement monitoring and evaluation programs to track resource use	• Studies on Bird, Small Mammal, and Large Mammal distribution, and Vegetation Types completed • Vegetation map established for LLNP using GIS technology	• Incorporation of CSIADCP and other research into GIS maps as it becomes available	TNC ecological studies de-linked from CSIADCP studies in February 2000, as CSIADCP too far behind schedule • TNC assisted in order and purchase of biological study equipment, and in team selection process for ADB/CSIADCP project
11) Guard posts, housing, visitor centres [2] (CSIADCP program)	No TNC role specified	• Material developed and displayed in Provincial Museum	• Updates and support for educational displays	• Social conflicts between Kamarora villagers and BTNLL means that it is not safe to display materials in the Visitor Center
12) Trail construction[2] (CSIADCP program)	No TNC role specified			

[1] As per Loan Covenant; Park and Buffer Zone Management (source: PAM Feb.1998)
[2] As per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (this document does not specify TNC's role)
[3] As per USAID/TNC Grant Document (15 Jan. 1999) and USAID/TNC Workplan

Part B2 – Buffer Zone Management

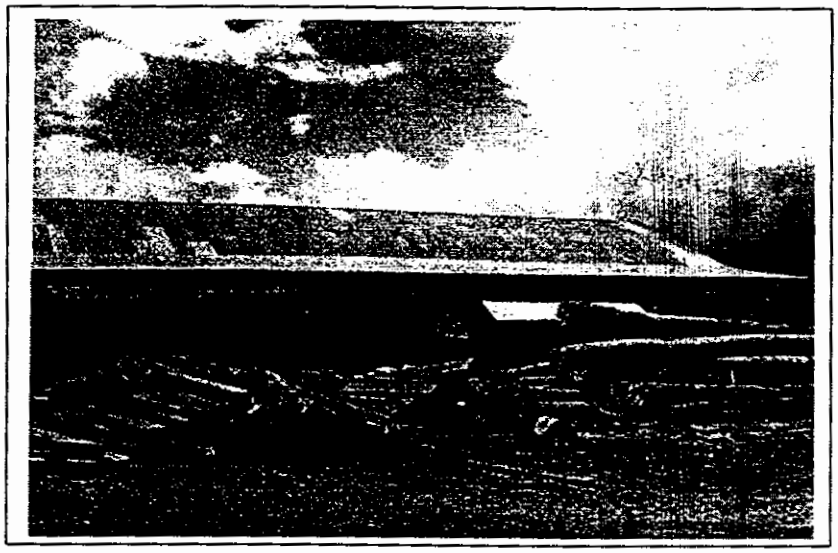
ADB/CSIADCP Objectives	USAID/TNC Objectives[3]	TNC Achievements	Future steps	Notes
13) Conservation agreements for land in Buffer Zone [2]	No TNC role specified	• Land Use maps available for 13 villages	• GIS facility can provide support	NB – Under RI law, Buffer Zones are external to conservation areas
14) Identification (by villagers) of alternative sources of income [2]	No TNC role specified	• Scoping study by Anutech recommends focus on villagers' perceived needs	• Completion of World Education farmer training	• World Education program TNC funded
15) Small-scale tourism at 4 communities [2].	No TNC role specified	• Check list of birds of Lore Lindu published • Guidebook to Lore Lindu published (2 languages)	• Guide to Flora of Lore Lindu published • Guidebook to Megaliths published	• USAID has agreed that funds can be generated from sale of guidebooks to support FKTNLL (after 500 copies of each donated)
16) Buffer Zone Forums [1,2]	See 8) above			

[1] As per Loan Covenant; Park and Buffer Zone Management (source: PAM Feb.1998)
[2] As per Project Agreement; Part B - Park and Buffer Zone Management, Schedule 1 (this document does not specify TNC's role)
[3] As per USAID/TNC Grant Document (15 Jan. 1999) and USAID/TNC Workplan

APPENDIX IV

Sawmill Report

Mapping Distribution of Sawmills in the Palolo Valley as part of efforts to combat Illegal Logging



Cooperation between:

The Nature Conservancy

FKTNLL
Forum Kemitraan
Taman Nasional Lore Lindu

POLDA SULTENG

NOVEMBER 2001

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Mapping Distribution of Sawmills in the Palolo Valley as part of efforts to control Illegal Logging

(Translation of original report from Indonesian by D.Neville, March 2002)

BACKGROUND

Lore Lindu National Park is important for protecting buffer zones, preserving the diversity of plants and animals and their ecosystems, and for sustainable use of natural resources, but its main function is as a water catchment.

High diversity of vegetation and natural habitats mean that Lore Lindu National Park has a high potential for timer extraction. The Park is surrounded by more than 60 villages – the various activities and economic needs of the local populace at this time are the source of a major threat to the Park, and the illegal logging trade is growing rapidly. Palu City is the closest market to distribute these timber forest products.

Balai Taman Nasional Lore Lindu as the agency responsible for protection and management of LLNP, is planning to develop a complete database to improve enforcement and to reduce illegal logging in LLNP.

OBJECTIVES

1. To map the position of all sawmills and transport roads in the Palu Valley which contribute to illegal logging operations.
2. To collect data and establish a database that supports development of an effective enforcement system, and allows for monitoring of illegal logging and appropriate decision making.
3. To improve the knowledge of BTNLL staff and rangers regarding the number and location of sawmills, and their duties in the field.
4. To raise the capacity of BTNLL staff and rangers in using GPS mapping tools in their everyday work.
5. To complete data required for LLNP management planning.

OUTPUTS

1. A report covering:
   - Map of locations of sawmills and main roads acting as transport routes for products of Illegal Logging.
   - A database of sawmills in the Palu Valley and surroundings.
2. General knowledge of the distribution of sawmills for BTNLL staff and rangers to support their everyday work.
3. An increase in the capacity of BTNLL to use GPS tools.

TEAM MEMBERS

All field study activities were carried out by a team from Balai Taman Nasional with partners from local NGOs, and facilitated by The Nature Conservancy (TNC) for technical process of mapping and GIS data analysis.

Implementing Team:

- Leader : Sadik (FKTNLL)
- Treasurer : Marcelinus (Technical Staff BTNLL)
- Members :
  - Dody (POLHUT BTNLL)
  - Andy Masri (Technical Staff BTNLL)
  - Jisman (POLHUT BTNLL)
  - Yohan (BKKPA)
  - Ilham (Yayasan Katopasa)
  - Mayor F.F Polo (POLDA SulTeng)
  - Serka Deddy (POLDA SulTeng)

Data Processing: Implementing Team and GIS Manager TNC

SURVEY METHODOLOGY

(a) Preparation

The first stage involved team meetings at BTNLL to discuss the following points:

- Clarification from the Team Leader on the purpose of mapping activities;

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- Clarification of funding, payments, and accounting during activities;
- Discussion of rights and limitations of the survey team, when it was agreed that activities would be limited to collection of data on position, ownership, and permitting of sawmills, and would not involve any enforcement activities;
- The need to obtain a recommendation letter from Agency for Industries, Trade, Cooperatives, and Investment *(Deperindag)* as authority to carry out the survey, besides a recommendation letter from BTNLL and other letters of work;
- In regard to the geography and administrative boundaries, it was decided to define areas of work as follows:
  - South East area : Petobo
  - North east area : Watutela
  - South west area : Km 5 (Palupi)
  - North west area : Watusampu
  - Central northern area : Pantoloan
  - Central southern area : Kalukubula
- Based on this and on limitations of the team, two working unit were formed, each with one police officer, with a division of responsibilities so that Team 1 handled the North west, Central northern and Central southern areas, and Team 2 handled the South east, North east, and South west areas.

(b) **Field Methods**

- Day One – one Team concentrated on obtaining recommendation letters from relevant authorities, and the other Team carried out a pre-survey of locations around Palu City to assist in planning for surveys the following day.
- Day Two until Finish – the Teams started surveys in their appropriate areas, visiting sawmills, timber stores, and sawmill owners around Palu City, and collected data which included :
  - Sawmill Data : the position using GPS, legal status, documentation and additional from interviews with regard to origin of timber, etc.;
  - Timber stores : position using GPS, legal status, documentation, statements on origin of raw material and sawmill supplying timber;

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- Roads : Mapping with GPS the roads that are mainly used to link sawmills, timer stores, and raw materials.

- Each day before carrying out activities, a short meeting was held to discuss the previous day's findings, and workplans for the day ahead, so that activities could be coordinated and efficient;
- Measurements form the field were immediately put into the GIS system so that they could be used to plan movements in he field.

(c) **Difficulties**

- Some sawmills were isolated and difficult to reach using four-wheeled vehicles;
- Limited knowledge of the location of sawmills and timber stores meant that some were not visited, particularly as data from *Deperindag* did not include compete addresses for businesses.
- Several of the sawmills were not open in supplying information.

RESULTS

The survey was carried out well without encountering serious problems, one indicator being that sawmill owners and timber traders were generally sympathetic, and were happy to provide objective information. This was in part due to the support of Provincial Police Department that was directly involved in this survey. A brief summary of results is:

1. One hundred and thirty seven data sets were recorded:
   - Timber moulding workshops 2 units,
   - Sawmill 58 units
   - Timber stores 77 units
2. Data was input into the database using Microsoft Access, at any time in the future there is additional data it can be input directly, and can provide analyses to suit any agency's needs.
3. Photographs of 45 Sawmills and Timber stores are attached to the database;
4. Distribution maps for Sawmills and Timber stores are attached for almost all businesses operating in thy environs of Palu City.

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5. [Of the 137 businesses recorded during this survey, only 30 could produce documentation, although 80 are apparently listed by *Deperindag*. Even using the more conservative *Deperindag* figure, around 42% of timber businesses in Palu are being conducted without adequate documentation i.e. can be described as illegal. This survey indicates that the real figure might be closer to 78%].

EVALUATION AND RECOMMENDATIONS

Mapping of sawmills and timber stores in Palu City as part of efforts to combat illegal logging received the support of many parties, particularly *Deperindag*, which supplied letters of support, and of the Provincial Police Department which was an enthusiastic part of these activities.

We are aware that these activities did not cover all Sawmills and Timber stores, as funds and time were limited, but with the database system established it will be possible to input additional data using the existing format. It is advisable that the depth and volume of this study be increased by involving more partners in combating Illegal Logging.

Listed Sawmill, Sawn Timber and Moulding Industries in Palu per January 2001

No	Company Name	Owner/manager	Type of business	Location
1	PT. Sari Bumi Pertiwi	Hj. Mardiah Mallo	Sawmill/Moulding	Kel. Mamboro
2	PT.Wana Jaya Nagapuspa	Ansyari	Sawmill	Kel.Pantoloan
3	PT. Sulawesi Ebony Sentra	Ruddy Chandara	Sawmill	Kel. Mamboro
4	PT. Brata Adjie Nugraha	Yongkie Adjie	Sawmill	Kel. Kayumalue
5	PT. Beestar Rimba Taipa	Titi	Sawntimber	Kel. Taipa
6	PT. Eto Pratama	Syarifudin Mallo	Sawmill	Kel.Kayumalue
7	PT. Multi Ratu Ebony	Umar Awad	Sawmill	Kel. Kayumalue
8	PT. Buana Timur Utama	P.S Lolong	Moulding	Kel. Kayumalue
9	PT. Unggul Utama	Ho Mona Huwarto	Sawmill	Kel.Kayumalue
10	CV. Endi Taman Jaya	Markus Tamma, SE	Sawmill	Kel.Kayumalue
11	UD. Kayu Mas Indah	Rudi hadiono	Sawmill	Kel. Kayumalue
12	UD. Nur	Hi. Hurdin Pakke	Sawmill	Kel. Kayumalue
13	CV. Naria	Alber Cutaryo	Sawmill	Kel.Kayumalue
14	PT. Prima Makmur Sentosa	Fransiscus Tony	Sawmill	Kel.Kayumalue
15	CV. Trisakti	Rusli Sumbandjinja	Sawmill	Kel. Kayumalue
16	PT. Sumber Makmur Jaya Perkasa	Herry Baramuli	Sawmill	Kel. Kayumalue
17	CV. Multi Putsmit Mulia	Sumitro	Moulding	Kel. Kayumalue
18	UD. Alam Mekar	Subiyanto	Sawmill	Kel. Kayumalue
19	CV. Multi Warna Tama	Hi. Syarifuddin	Sawmill	Kel. Kayumalue
20	UD. Arta Utama Mandiri	Hi. Mahbub Lantagi	Sawmill	Kel. Kayumalue
21	UD. Rimba Indah Persada	Yan Ferderik T	Sawmill	Kel. Kayumalue
22	UD. Indo Surya Utama	Erlina	Sawmill	Kel. Kayumalue
23	Sulawesi Mitra Sejati	Abraham Robert	Sawmill	Kel. Kayumalue
24	UD. Surya Agung	Marthen Peno	Sawmill	Kel. Taipa
25	PT. Himoyaku Sulawesi Persada	Rony Tanasaputra	Sawmill	Kel. Taipa
26	PT. Daya Mandiri Mitra Perkasa	Hi.M. Yunus Pakka	Sawmill	Kel. Taipa
27	PT. Sumber Tritama	T. Tama Gozal	Sawmill	Kel. Taipa
28	PT. Alisindo Mamboro Prima	Telly Liong	Sawntimber	Kel.Mamboro
29	UD. Cahaya Oskar	Olky Saputra	Sawmill	Kel.Mamboro
30	CV. Wana Karya	Herry Rasyid	Sawmill	Kel. Mamboro
31	CV. Rimba Perkasa	Acong Lamuhamad	Moulding	Kel.Mamboro
32	CV. Mutu Anggun	Misron Asdi	Sawntimber	Kel. Mamboro
33	UD. Mega Buana	Hi. Latake	Sawmill	Kel. Mamboro
34	PT. Welmy Pratama Indah	Hi. Paweloy Bintang	Sawmill	Kel. Mamboro
35	CV. Ridha	Hi. Arwin Lantagi	Sawmill	Kel. Tondo
36	CV. Amal Sakti	Abdul Samid	Sawmill	Kel. Tondo
37	CV. Miranti Makmur	I Made Wenten	Sawmill	Kel. Tondo
38	CV. Lipa Permata Indah	Hi. Rasmin Taba	Sawmill	Kel. Tondo
39	UD. Yulian	Hi. Samsul	Sawmill	Kel.Tondo

40	CV. Sabar Utama	Hi. Sake Saing	Sawmill	Kel.Tondo
41	CV. Malantang	Hi. Alimuddin	Sawmill	Kel. Tondo
42	UD. Nur Halimah	Handoko	Sawmill	Kel.Tondo
43	CV. Hasil Jaya	Rudy Angku Jaya	Moulding	Kel.Tondo
44	CV. Asia Hikra Nugrah	Hermantp	Moulding	Kel.Tondo
45	CV. Chindo Raya	Ismet Ismael	Moulding	LIK Tondo
46	UD. Cahaya Sulawesi	Hi.Sukardi	Sawmill	Kel.Tondo
47	PT. Yori Je Jaya	Afong	Sawntimber	Kel.Tondo
48	PUSKUD SulTeng	PUSKUD SulTeng	Sawmill	Kel. Tondo
49	Zen Kharisma Indah	Hj. Rosmani Halim	Sawmill	Kel.Tondo
50	PT. Yori Masa Company	Elly Chandra	Sawmill	Kel. Talise
51	UD. Rudi	Hi. Djassa	Sawmill	Kel. Talise
52	UD. Cahaya Sidrap	Hi. Usman	Sawmill	Kel. Talise
53	PT. Indotama Putra	Lily Marlina	Sawmill	Kel.Pantoloan
54	UD. Buana Alam Wahyu	Bustamin Lamongki	Sawmill	Kel.Pantoloan
55	UD. Ridha	Hi. Arwin Lantagi	Sawmill	Kel. Lasoani
56	UD. Buana Alam	Hi. Arwin Lantagi	Sawmill	Kel. Sambale Jrg
57	UD. Rahman	Hi. M.Yunus Duma	Sawmill	Kel. Petobo
58	UD. Cahaya Alam	Hi. Rahman Tang	Sawmill	Kel. Birobuli
59	PT. Mitratama Jaya Mandiri	Titin Trisnawati	Sawmill	Kel. Birobuli
60	UD. Siperennu	Hi. Saleng	Sawmill	Kel. Palupi
61	UD. Nurhana	M. Zain Umar	Sawmill	Kel. Palupi
62	CV. Cipta Bama	Agus Irwan Cadullah	Sawmill	Kel. Poboya
63	PT. Bahari Jaya Mandiri	Ammirudin Buchari, SE	Sawmill	Kel. Tinggede
64	CV. Wira Karya Padaidi	Hi. Tajuddin	Sawmill	Kel. Tavanjuka
65	CV. Mutiara Indah	Hj. Rahmawati	Sawmill	Kel. Kamonji
66	CV. Karya Sama	Hi. Syarif	Sawmill	Kel. Boyaoge
67	CV. Fajar Mas	Hi. Saad	Sawmill	Kel. Buluri
68	UD. Cahaya Banua	Abdul Muis	Moulding	Kel. Pengawu
69	CV. Hasfen	Sucipto Afandi	Sawmill	Kel. Pengawu
70	UD. Indah Utama Mandiri	Rudi. H	Moulding	Kel. Boyaoge
71	UD. Permata Biru	Bunyamin Badawi	Moulding	Kel. Lere
72	CV. Havid Jaya	Idrus Alkaf	Moulding	Kel. Kamonji
73	UD. Sumber Rezeki	Hi. Sukri	Sawmill	Kel. Boyaoge
74	Nur Alam Indah	Hi. Burhan	Sawmill	Kel. Lere
75	CV. Rahayu Raya	Husein Zein	Moulding	Kel. Tondo
76	CV. Kayumalue Lestari	Darman	Moulding	Kel. Kayumalue
77	UD. Taurus Jaya Utama	Albert Laemanasari	Moulding	LIK Tondo
78	CV. Berkat Sarana Umar	Efendi Tobing	Timber panel	LIK Tondo
79	Surya Abadi	Limbung	Moulding	Kel. Kayumalue
80	CV. Karya Lembah Palu Nagaya	Djisman Sunusi	Sawntimber	LIK Tondo

Palu, 31 Januari 2001

Tim Pemutahiran Indag Kota Palu

Survey Data on Sawmills and Timber Stores, November 2001

NO	Waypoint	Longitude_(X)	Latitude_(Y)	Type of Business	Company Name	Permit Number	Owner	Address	Notes
1	KK1	149093.401	9901742.056	Timber Store	CV. Bhatara Abadi		Hi. Bakri Abdulah	Jl. Poros Palu-Pantoloan	Has another sawmill at Wani and Timber store at Pantoloan
2	SM1	148968.301	9898156.202	Sawmill	CV. Bhatara Abadi	SIUP 3011/23-02/DK/11/96	H. Bakri Abdulah	Desa Wani	Buys timber freely from HPH PT.Dwihutani Fitri Bakti, Informant: Rasyid
3	SM2	149558.686	9922148.449	Sawmill	UD. Brama Alam Kayu		Bustamin Lamongki	Jl. Jogolanggo, Desa Pantoloan	Services and sawn timber, Informant: Bustanil
4	SM 3	149908.404	9922636.531	Moulding	PT. Indotama Rupa	054.59/19/PDN/SIUP-PB/PL/II/1988/P.I	Lyli Marlina	Jl. H Patila, Desa Pantoloan	Cooperation with INHUTANI, PT Labuan Putra, sawn timber
5	SM 4	151015.431	9920580.682	Sawmill	PT Wana Jaya Nagapuspa		Ansyari	Kelurahan Pantoloan	
6	KK2	150765.88	9918523.227	Sawmill	UD. Alam Raya		Hi. Alimuddin	Tawaeli	Permits currently being extended by Alim Nur
7	SM5	150368.176	9916945.784	Sawmill	PT. Etu Pratama		Syarifudin Mallo	Kayumalue, Pajeko	services
8	SM6	150623.273	9916538.532	Sawmill	CV. Multi Pusmit Mulia		Sumitro	Kayumalue, Pajeko, Jl Setia Budi,Ir Siswa. 7 F	Housing timber from PT KSC Jaya, Gorontalo
9	SM7	150747.277	9917163.836	Sawmill	CV. Indo Surya Utama	314/Sulteng/02/IK-1/K/1992	Erlina	Desa Kayumalue, Pajeko	Home no Tlp:451858, raw material and sawnwood
10	SM8	151825.318	9916437.712	Sawmill			Agus (Alm)	Jl. Sarowele, Kayumalue	Just reopened
11	SM9	151836.315	9916082.627	Sawmill			H. Matruji	Jl. Sarowale, Kayumalue	Open 1 month, Informant: Asmoto

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12	SM10			Sawmill	PT Sumber Makmur Jaya Perkasa			Jl Terale, Kayumalue	has business permit No.106/KOP/a/UP/SIU P-K/X/2001, opened 1987
13				Timber Store		734/23-02/PK/11/88	H. Ardin	Jl. Towua No. 156A	
14	M1	152262.063	9899754.111	Timber Store	CV. Amal Sakti		Abd. Samid	Jl. T. Santigi No. 70	
15	M2	152295.989	9899630.101	Timber Store	UD Buana Malantang		Hi. Adam M.	Jl. T. Santigi No. 1	
16	M3	152237.715	9899147.721	Timber Store	UD Idam	09.72.03.00679 A	Hi. Ibrahim	Jl. Emysailan No. 19	
17	M4	152387.289	9898174.769	Timber Store	UD Nur Alam Pakke		Hi. Yuni	Jl. Touk	
18	M5			Timber Store			Hi. Ramli	Jl. Towua No. 27	
19	M6	153004.499	9897270.42	Timber Store	UD Buana Alam	734/23-02/PK/11/88	Hi. Ardin	Jl. Towua No. 124	
20	M7	153240.606	9896980.119	Timber Store			Yopi Umar	Jl. Towua No. 141	
21	M8	153220.414	9896978.597	Timber Store	UD Resota Jaya	225/19/UPDN/PK/VIII/97	Samsu Pake	Jl. Towua No. 140	
22	M9	153158.232	9896466.832	Sawmill	UD Arya Utama Mandiri	264/Sul-Teng/02/TK.I/VII/94	H. Mahbab L, SE	Jln. Towua No. 156	
23	A1	153534.793	9900195.749	Timber Store			Usman Anas	Jl. Kartini No. 24	
24	A2	154638.385	9900433.114	Timber Store			Jamaluddin	Jl. Veteran 136	
25	A4	154746.989	9899993.23	Sawmill	CV. Ridha	2578/Ktb-Kodya-III/99	Hi. Arwin Antagi	Jl. Maleo No. 73	
26	A6	154515.555	9898253.98	Timber Store	UD Cahaya Sidrap		Hi. Usman	Jl. Abd. Rahman Saleh 41	
27	A7	152593.254	9898286.04	Timber Store	UD Sinar Alam		Hi. Darwis	Jl. Basuki Rahmat 27	
28	A8	152959.221	9899030.891	Timber Store	UD Cahaya Hendra		Hi. Pammase	Jl. Anoa I No. 106	
29	A9	153377.012	9898907.054	Timber Store	UD Cahaya Asseriani		Hi. Laterru	Jl. Anoa I No. 127	
30	A10	155089.552	9901704.448	Sawmill	Cv. Cipta Bama	356/Sulteng/02/IK.1/93	Irwan Cadullah	Jl. Lagaratu	

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31	SM11	151986.283	9915487.102	Sawmill	Zen Kaharisma Indah	Hj Rosmin Halim	Jl Sarowele, Kayumalue	No.tlp:429468,492154, raw material from Poso, Tomini, Toli-Toli.
32	SM12	151876.05	9915405.137	Sawmill	Multi Ratu Ebony	Umar Awad, R Tatang AS	Jl Diponegoro 45	Raw material from Pantai Timur, Barat, Poso
33	SM13	151863.886	9915064.579	Sawmill	Multi Sari Wanatama	Ir. Sayfsudin	Jl. Toyolere, Kayumalue	
34	SM14	150315.475	9915541.074	Sawmill	UD Nur	Hj. Nurdin Pakke	Kayumalue Pajeko	Home Jl T.Dako no 68,Tlp 491847, Most raw material from Pantai timur, Barat without documents
35	SM15	150321.51	9915760.687	Sawmill	PT. Kayu Mas Indah	Rudi hadiono	Jl Seroja, Kayumalue, Pajeko	No tlp: 421898, has letters/documents for timber
36	SM16	150614.852	9915623.776	Sawmill	PT. Brata Ajie Nugraha	Yongki Adjie, Chandra	Jl Mawar I, Kayumalue,Pajeko km 16	Home jl. Emmi Saelan tlp 482852
37	SM17	151022.888	9915862.361	Sawmill	PT Karya Mas Primadona	Paulus Hasmoni	Jl Raya Palu-Pantoloan Km 16, Kayumalue	Tlp 492254, raw materials from Pantai Timur, Barat
38	SM18	151196.693	9915244.228	Sawmill	PT Unggul Utama	Ho Mona Howarto	Jl. Trans Sulawesi, Kayumalue	Home: Jl Cut Nyak Dien 32, no tlp 421768
39	SM19	151097.924	9915598.872	Sawmill	PT Buana Timur Utama	P.S Lolong	Jl Raya Pantoloan 153	No tlp 491403, raw materials from own IPK concession
40	SM20	150827.696	9915005.391	Sawmill	CV Naria	Albert Cutaryo	Kayumalue	Home :jl Gajahmada tlp 421274
41	SM21			Sawmill	PT Himoyaku, Sulawesi Persada	Rony Tanusaputra	Taipa	Home: jl Moh Hatta, tlp 454730, raw materials from Pantai Barat, poso (Mrs Dewi)
42	SM22				PT Bastari Rimba Taipa	Mr Wu	Jl Inotoa, Taipa	Director Mr Wu, tlp 491886/889

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43	SM24	151077.683	9914171.912	Sawmill	PT Sumber Tritama		T Tama Gozali	Jl M Amin. Taipa	Home: jl G. Tinombala, tlp 428872, raw material from Gorontalo, and Pantai Timur
44	SM23	150189.687	9914956.701	Sawmill	UD Alam Mekar		Subiyanto	Kayumalue	Home: jl S. Hasanuddin 12, telp 421657
45	SM26	152956.296	9912793.446	Sawmill	CV Dinamis Abadi		Sudarsana	Mamboro, Boya	Home: Jl Zebra 22b, Telp 481203
46	SM27	151292.539	9912251.264	Sawmill	PT. Alisindo Mamboro Prima		Teny Liong	Jl Balai POM, Mamboro	Front view is of Hotel Formosa, Sawmill in back yard
47	SM28	151082.435	9912412.793	Sawmill	PT Sari Bumi Pertiwi		Hj Mardia Mallo	Lr SPK Taloakonci	Tlp 491476, raw material Gorontalo ?
48	SM29	152541.05	9909933.455	Sawmill	PT Sulawesi Ebony Sentra		Ruddy Chandra	Km 10 Palu - Pantoloan	Telp 423210, UD Madju telp :421252,423210
49	SM 30	153005.258	9907950.18	Sawmill	CV Amal Sakti		Abd Samid, H. Atnan	Jl Trans sulawesi km 9 Tondo	
50	KK1	149093.401	9901742.056	Timber Store			Irma		Material from Sawmill Tondo, Palu
51	KK2	147543.047	9903333.426	Timber Store			Masniah		Raw material bought in Pantai Barat
52	KK3	148976.34	9901347.835	Timber Store			Ajo	Jl Lasoso no 68	Material from several sawmills, timber trader
53	KK4			Timber Store			Nurdin	Jl Datu Adam 6	Timber trader
54	KK5	149325.723	9901370.868	Timber Store			Aban	Jl Tulambu	Timber trader
55	KK6			Timber Store			H. Mamat	Jl Tulambu	Timber trader
56	KK7	151541.923	9899912.041	Timber Store			H Imran	Jl Tulambu	Timber trader
57	KK8	149307.64	9900489.477	Timber Store			Ny Salma	Jl Tulambu	Material from several sawmills
58	KK9	152654.719	9899488.771	Timber Store			Asep	Jl Tulambu	Material from several sawmills
59				Sawmill	UD Cahaya Sidrap		Hi. Usman	Jl. Setia Budi	

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60	A16	152571.05	9902003.04	Timber Store			Lambue	Jl. Setia Budi	
61	A17	152573.417	9901772.408	Sawmill	PT Yori Masa Company	257/DJIHPK/PA/I.UI/X/97	Eliyu Candra	Jl. Setia Budi No. 48	
62	A18	153112.158	9900121.295	Timber Store			H. Rahman	Jl. Tururuka No.5	
63	A19	153058.394	9900586.838	Timber Store			Hi. Adnan	Jl. G. Sidole 22	
64	A20	152720.31	9900897.583	Timber Store	Ud Cahaya Alam		Hi. Alimin	Jl. Slamet Riyadi 42	
65	A21	152632.085	9901271.868	Timber Store			Hi. Abdurahman AU	Jl. Otista 15	
66	A22	153242.484	9901132.626	Timber Store			Boddi	Jl. Kihajar Desawantoro 60	
67	A23			Timber Store	UD Tunas Baru		Hi. Muslimin	Jl. KH. Dewantoro	
68	A24	153295.782	9901452.967	Timber Store	UD Resota Jaya		Hi. Damis	Jl. Sisingamangaraja 28	
69				Timber Store			Alimmudin	Jl. Tombolotutu 155A	
70	A25	152277.404	9902441.249	Timber Store	CV. Malantang		Hi. Alimuddin	Jl. Hangtua No. 1	
71	A26	152335.415	9903005.543	Timber Store	Ud Sinar Alam	NPWPD 2.005603.02.04	Hi. Pammu	Jl. Hang Tua 45	
72	B2	152274.31	9901167.27	Sawmill	CV. Upa Permata Indah		Hi. Rasmin Tabah	Jl. Yojokodi No. 1	
73	B3			Timber Store	UD. Cahaya Sulawesi		Hi. Sukardi	Jl. Suprapto 8	
74	B4			Sawmill	UD Dahlia	0518/Sulteng/01/UP/Siup-K/VI/2000	Bahtiar	Jl. Mesjid Raya 18, Lolu Utara	
75	B6	153224.459	9897499.617	Timber Store	UD. Taharudin	0513/Sulteng/01/UP/SIUP-K/VI/2000	Hi. Sukiman	Jl. Zebra 47	
76	B7	151649.527	9897945.829	Timber Store	UD Ana Sejati	NPWPD 2.0011076.0301	Rahman Hibaba	Jl. Gusti Ngurarai 35	
77	KK10	150852.039	9900325.851	Timber Store			Muh. Nasir	Jl Sungai Gumbasa	Materials from several sawmills, timber trader
78	KK11	150235.588	9901018.701	Timber Store	UD Rudi		Hi. Jaso	Jl Agus Salim	Telp 455867, materials from sawmill UD Rudi Talise
79	KK12			Timber Store			Hi. Welo	Jl Suharso	Home : Jl Kenduri, Tlp 422697, raw materials from UD Cahaya

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									Sulawesi
80	KK13	153003.275	9907742.769	Timber Store	UD Sinar Win		Sudirman	Jl Trans Sulawesi	Raw Materils from CV Manantang
81	KK14	153004.511	9907664.238	Timber Store	UD Yulian		Hi Syamsu	Jl Trans Sulawesi	Raw materials from Pantai timur, sawn timber
82	SM32	152823.218	9907649.626	Sawmill			I Made Wantin	Jl Trans Sulawesi	Home: Jl Lembu 22, telp481066, Telp Office 411184
83	SM33	153381.799	9907279.92	Sawmill	CV Hasil Jaya	SIUP:314/19/UPOM/U/2000	Rudy Ankejaya	Jl Alkhairat, Tondo	Telp: 423271, Home: Jl Monginsidi Toko Busana
84	SM34	152742.437	9907278.924	Sawmill	CV Lima Permata Indah		Hj Rosmin Taba	Jl Tembang, Tondo	Telp : 454712, Home: Jl Kijang II 14, Telp 428016
85	SM35	152705.364	9907310.91	Sawmill	CV Cahaya Malantay		Hi Allimuddin	Jl Tembang, Tondo	Home: Jl Setia Budi 126, Telp 428016
86	SM36	152782.146	9907171117	Moulding	CV Ridha		Hi Arwin Lantagi	Jl Akper, Tondo	Telp : 454711, Home Jl S Moutong, telp 421665
87	KK15	153023.353	9906808.802	Timber Store	CV Anugrah		Hi Dale	Jl Trans Sulawesi, Tondo	Home: Jl Tanjung Karang 50, Telp 427909
88	KK16	153003.621	9906735.911	Timber Store	UD Nurhalima	SIUP : 2897/23-02/PK/XI/1995	Hi Mustamin Umar	Jl Trans Sulawesi	Materials from several sawmills, timber trader
89	SM37	155338.929	9907079.161	Sawmill	CV Komiu Jaya		Janwar		Home: jl Banteng EE 02, Telp 487452
90	SM38	152682.806	9906095.399	Sawmill	UD Nurhalimah		Handoko, Arifin	Jl Cakalang 15	Telp : 452216, raw materials from Ampana, Poso
91	SM39	152865.244	9905975.872	Sawmill	CV. Yori Je Jaya	021/KP/01/UP/SIUP-M/VI/2001	Afong	Jl Cakalang	Raw materials fromGorontalo, Kotamobagu, Manado, P.Timur
92	KK17	152984.88	9905849.259	Timber Store	UD Setia Budi		Ridwan	Jl Sulawesi 642	
93	H1			Sawmill			H. Rahman	Jl Dewi Sartika, Birobuli	
94	H2			Sawmill		190512000200	Titin Trinawati	Jl Dewi sartika, Birobuli	

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95	H4			Timber Store	UD Karya Damai	2365/23/PK/VI/94	Dahlan, Hi. Mattenga	Jl. Dewi Sartika, Birobuli
96	H5			Sawmill	UD Rahma	07/KDP/32/IND/SIU T.K/2001	Hi. Yunus	Jl. Dewi Sartika, Birobuli
97	H6			Sawmill			H. Samba	Jl. Petobo
98	H7			Timber Store	UD Sale		H. Ambo	Jl. Dewi Sartika, Birobuli
99				Timber Store			H. Latang	Jl. Dewisartika II, Birobuli
100	H8	155994.065	9896000.892	Timber Store			Oding	Jl. Dewisartika II No. 15 Birobuli
101	H11	155028.169	9895975	Timber Store			Abd. Assis	Jl. Dewi Sartika, Birobuli
102	H13	154516.681	9897180.155	Timber Store			Sultan Kalong	Jl. Dewi Sartika No. 76, Birobuli
103	H14	154425.571	9897441.319	Timber Store			Nurdin	Jl. Dewi Sartika No. 67, Birobuli
104	H15			Timber Store	UD Rudy		Hi. Abdullah. Y/Hi. Yasa	Jl. Banteng No. 27A
105				Sawmill	PT. Bachari Jaya Mandiri	124/KDP/32/IND/SI UI-M/2001	Amirudin Buchari	Jl. Tinggede 76
106	B9	151509.16	9897907.161	Timber Store	UD. Sipurennue	SIUP: 68/19/BS/PK/IV/97	Moh. Syakir	Jl. Gusti Nguraraih
107	B10			Sawmill	UD. Makaampo Sibayu	289/Sulteng/02/IK.I/ X/2001	Recky. W	Jl. Gusti Ngurarai
108	B13			Sawmill	UD Nurhan	3051/23-02/PK/IV/1996	Moh. Zain Umar	Ds. Palupi, Kel. Palupi, Kec. Palu Selatan
109	B14			Timber Store	UD. Siperennue	68/19/BS/PK/IV/97	Hi. Lasaleng	Jl. Tadulako II
110	B16	150018.834	9897257.801	Timber Store			Dahlan	Jl. Puebongo 18, Kel. Palupi
111	B18			Timber Store			Lakasau	Jl. Gusti Ngurarai No. 1
112	B19	150075.795	9897917.25	Timber Store	UD. Kartika		Sulaiman	Jl. Padan Jakaya 150
113	B20	150031.149	9897917.25	Timber Store	UD. Siperenivue	68/19/BS/PK/IV/97	Anwar	Jl. Puebongo
114				Sawmill	UD. Kayu Mas Indah	074/PKP/32/IND/SIU P-K/2001	Ruddy Hadiono	Jl. Puebongo 40
115				Timber Store	UD. Indah Utama Mandiri	075/PKP/32/IND/SIUP-KN/V/2001		Jl. Puebongo 40

25

116	N2			Timber Store			Rustam	Jl. Sungai Manonda 76	
117	N3	148503.916	9900000.283	Timber Store			Hi. Sabri	Jl. Manggis 16	
118	N4	148650.343	9900162.148	Timber Store			Parmansah	Jl. Manggis 59	
119	N5	148824.794	9900171.972	Timber Store			Hi. Ahmadi	Jl. Manggis 71	
120	N7	149277.684	9899732.711	Timber Store			Azis	Jl. Labu	
121	N8	149556.768	9899852.421	Timber Store			Muhammadin	Jl. Cempedak	
122	N9	149918.785	9899801.9	Timber Store			Rohani	Jl. Cempedak 46	
123				Timber Store	UD. Meubel Ratu		Muhamad, Hi. Batang	Jl. Tolambu 24	
124				Timber Store	UD. Surya Indah		Anas Daeng Sibalu	Jl. Rono 27	
125				Timber Store	CV. Maundo Nusantara		Suyuti	Jl. Rajawali 75	
126				Timber Store	UD. Julian		Hi. Samsul	Jl. Patimura 69	
127				Timber Store	UD Nur		Hi. Nurdin Pakke	Jl. T. Manimbaya 97	
128				Sawmill			Pepen	Kel. Duyu, belakang Puskesmas	
129	N10			Sawmill	CV. Karya Sama	123/Sulteng/02/Tk.I /IV/92	Hi. Muh. Syarif	Jl. Cempedak 73	
130	N11	150000.275	9899731.058	Timber Store			Nurdin	Jl. Cempedak 75	
131	N12			Timber Store			Andi Bakti	Jl. Sukun 7	
132	KK1	149093.401	9901742.056	Timber Store	UD. Taharudin		Hi. Sukiman	Jl. Karajalemba	
133				Sawmill	CV. Maundo		Suyuti	Jl. Ketimun 8	
134				Sawmill	CV. Sinar Abdi Wahyu		Nurcasawi	Jl. Kedondong	
135				Timber Store			Asri	Jl. Tolambu 5	
136				Timber Store			Salma	Jl. Tolambu 30	
137				Timber Store	UD. Melani		Hi. Muhtar	Jl. Tolambu 19	

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Database survey sawmill and timber stores
(6-15November 2001)

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FORMAT FOR RECORDING SAWMILL DATA

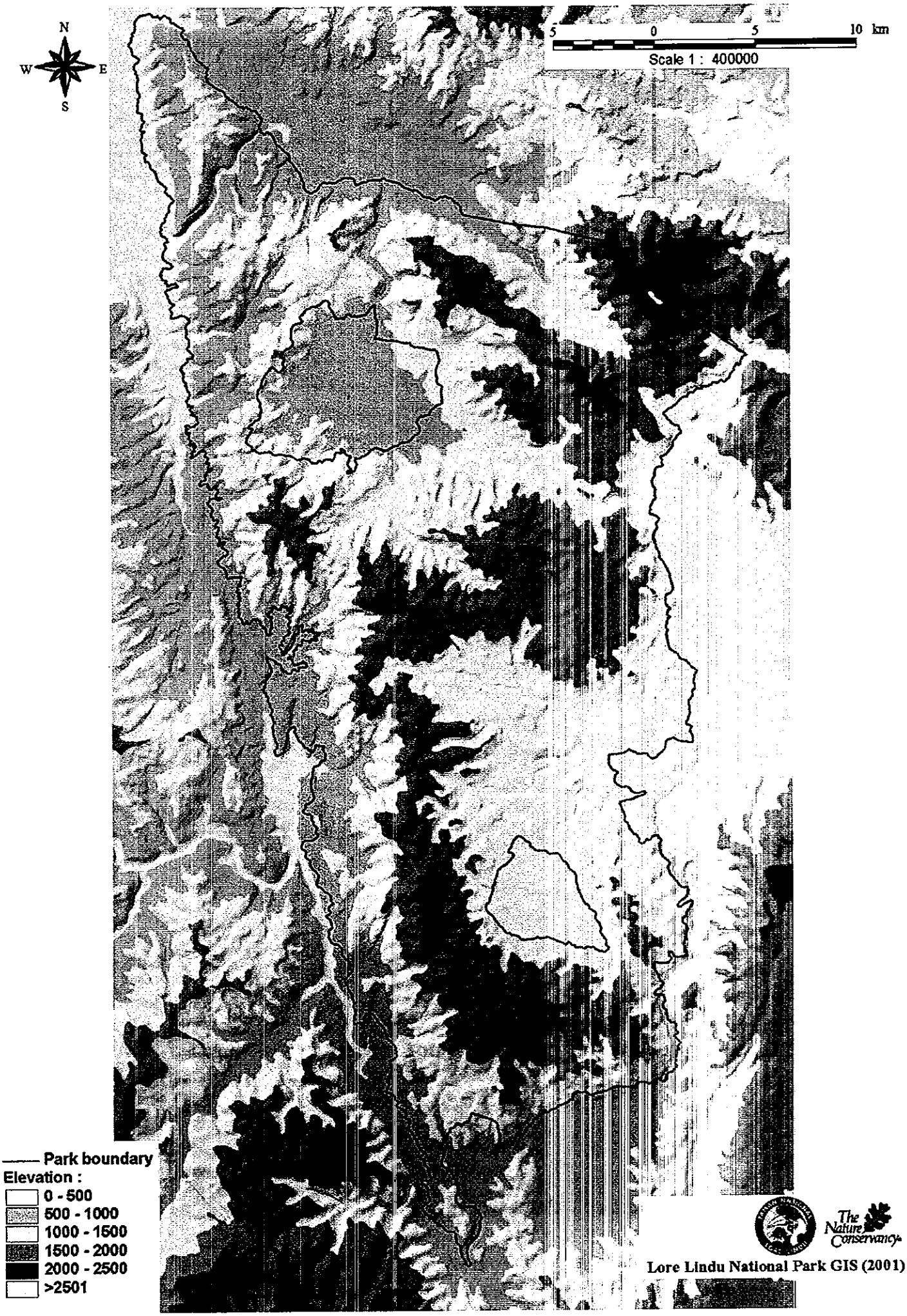
Daftar Isian Survey Sawmill dan Jalan Sebagai Unsur dari Illegal Logging

Waypoint GPS	Koordinat		Nama Pemilik (Owner's name)	Nomor Surat Izin (0 = tak ada)		Jalan/Nama Tempat (Address)	Keterangan (Notes)	No Foto
	Longitude (X)	Latitude (Y)						

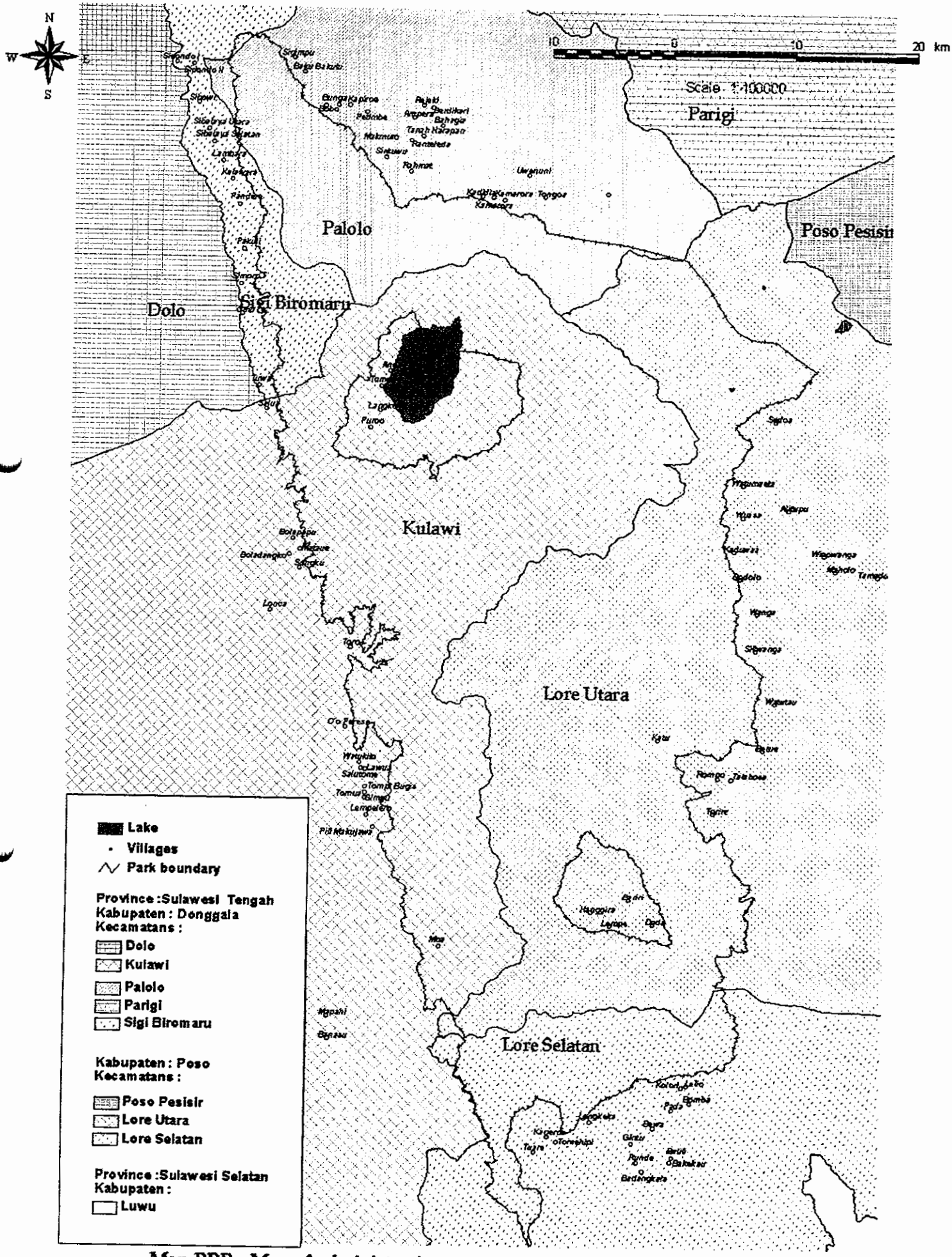
98

APPENDIX V

Maps

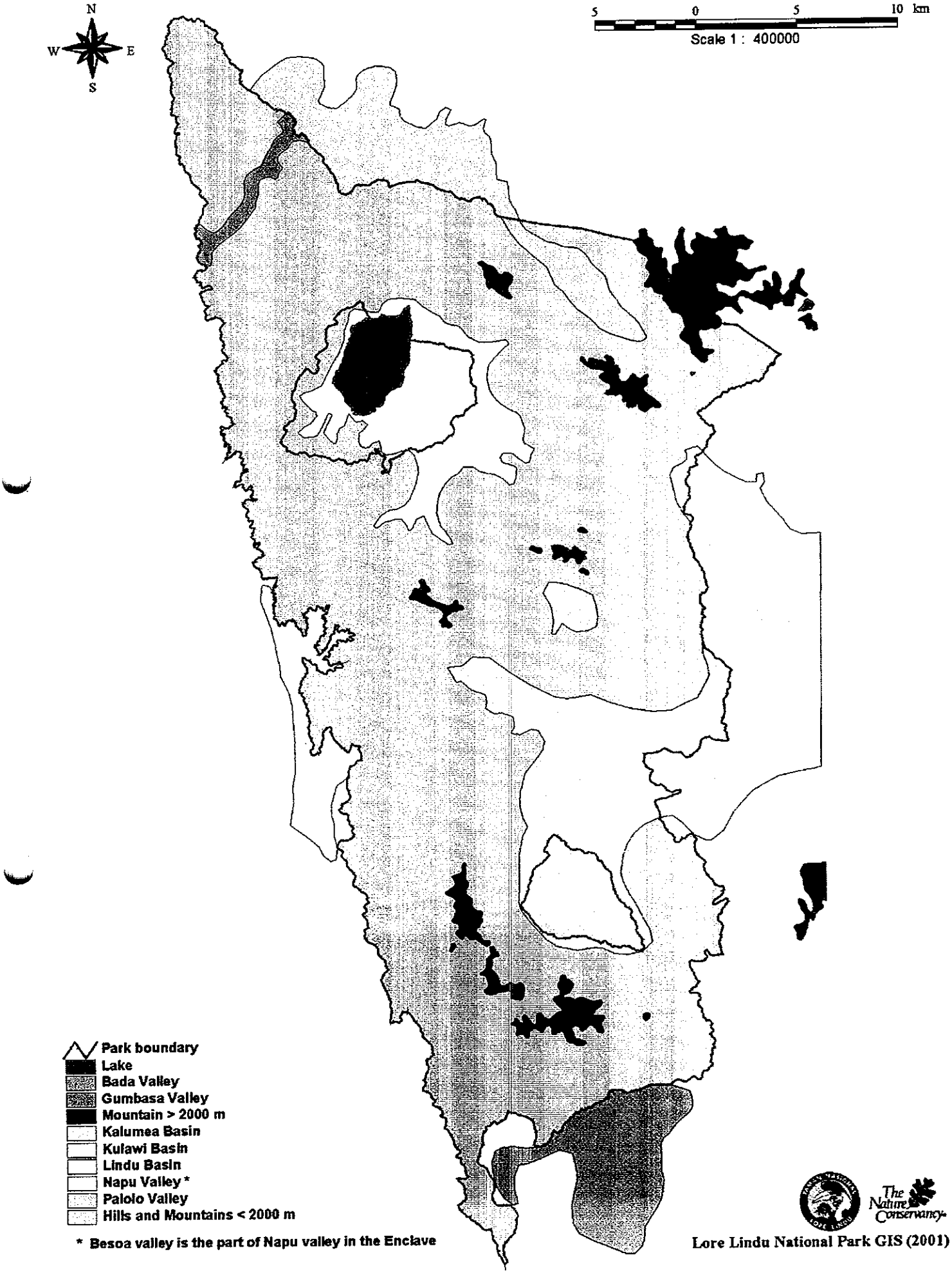


Map 3.4 :General topography of Lore Lindu National Park



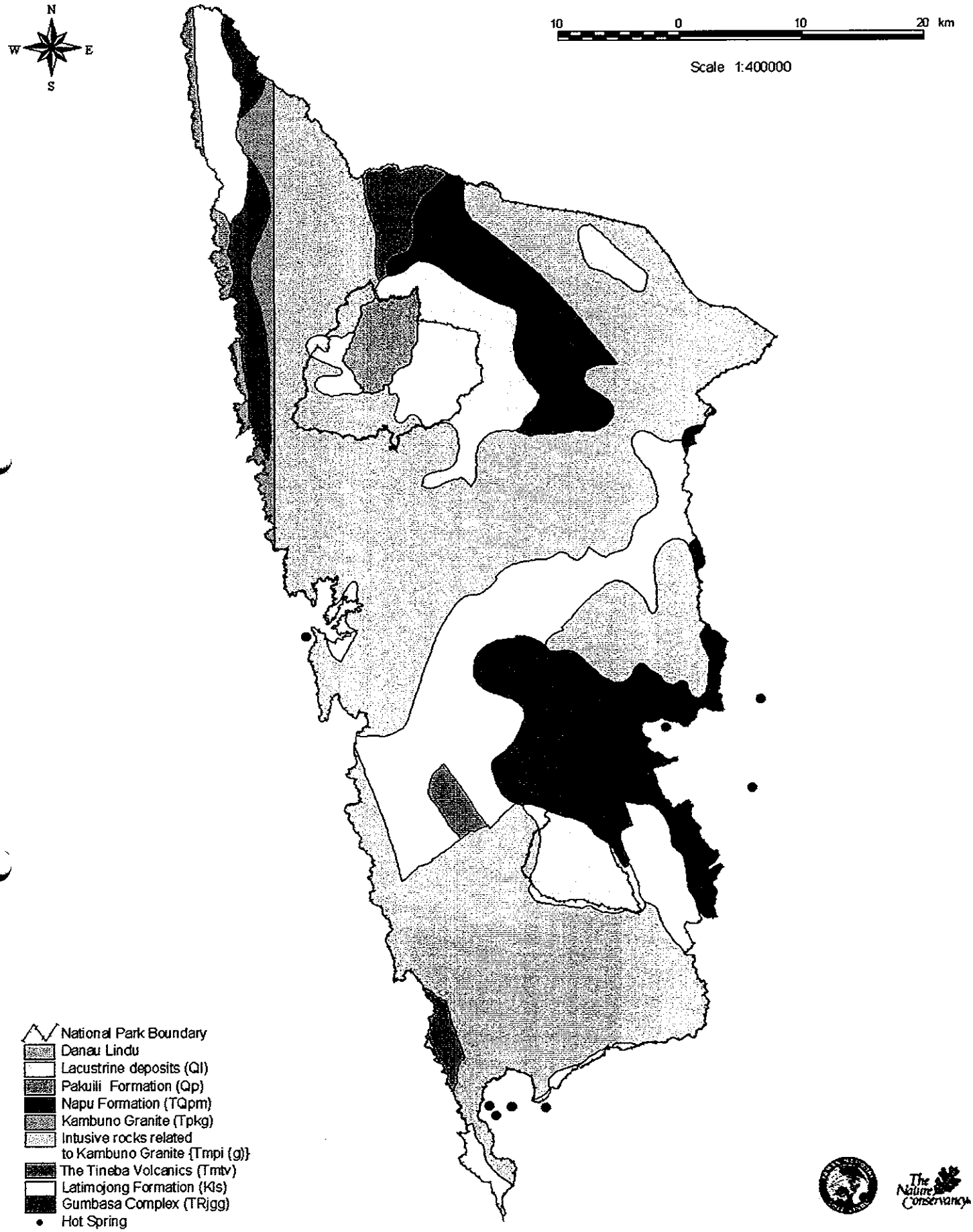
Map BBB : Map of administrative areas around Lore Lindu National Park

Source : Goverment Maps, prepared by Lore Lindu National Park Authority from data in Lore Lindu National Park GIS (2001)



Map 3.3 :Topographic Areas showing main surface features in and around Lore Lindu National Park

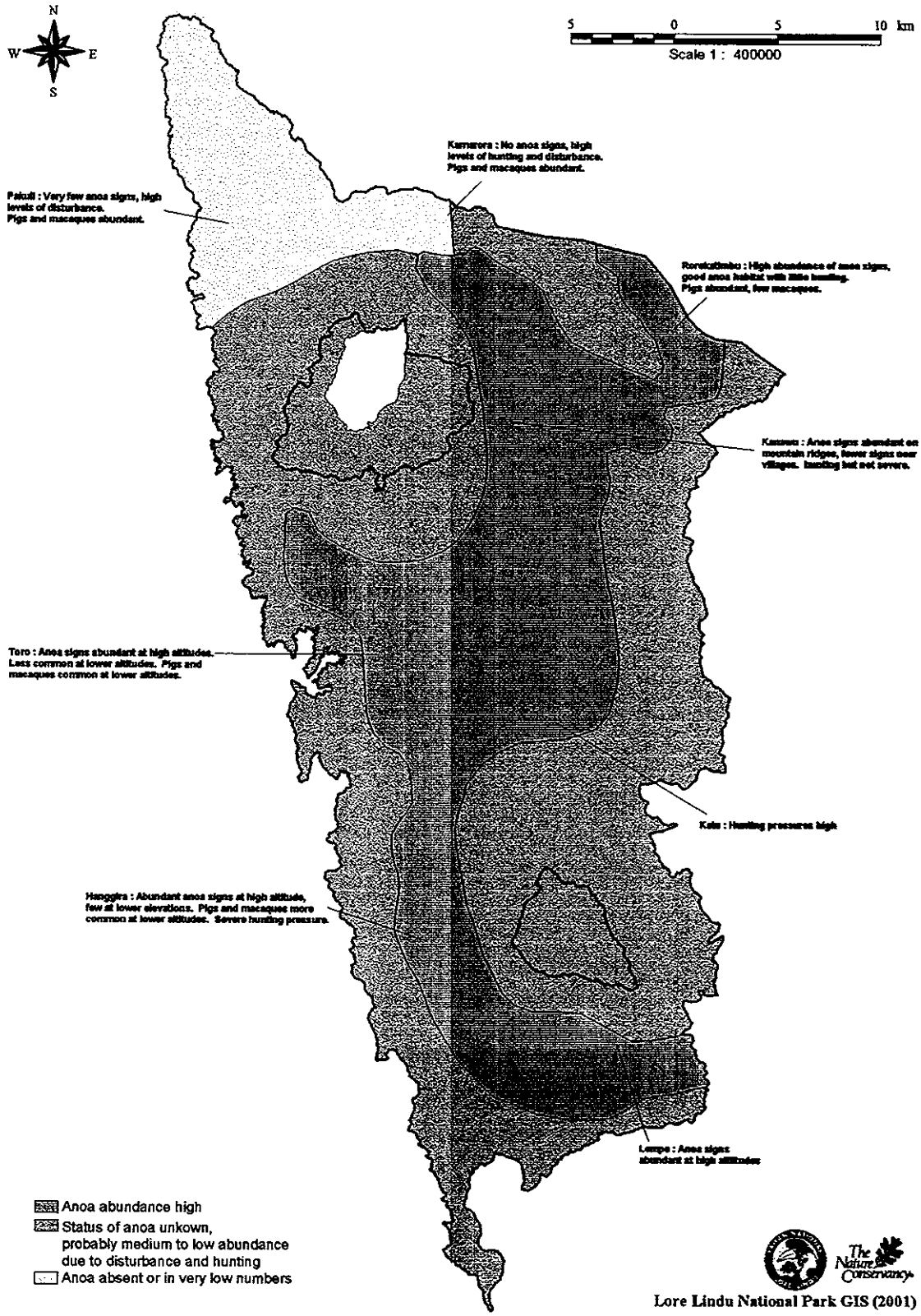
Source : Rupabumi Map (1:250.000 & 1:50.000), Bakosurtanal (1991)



Map GGG : Geological Map of Lore Lindu National Park

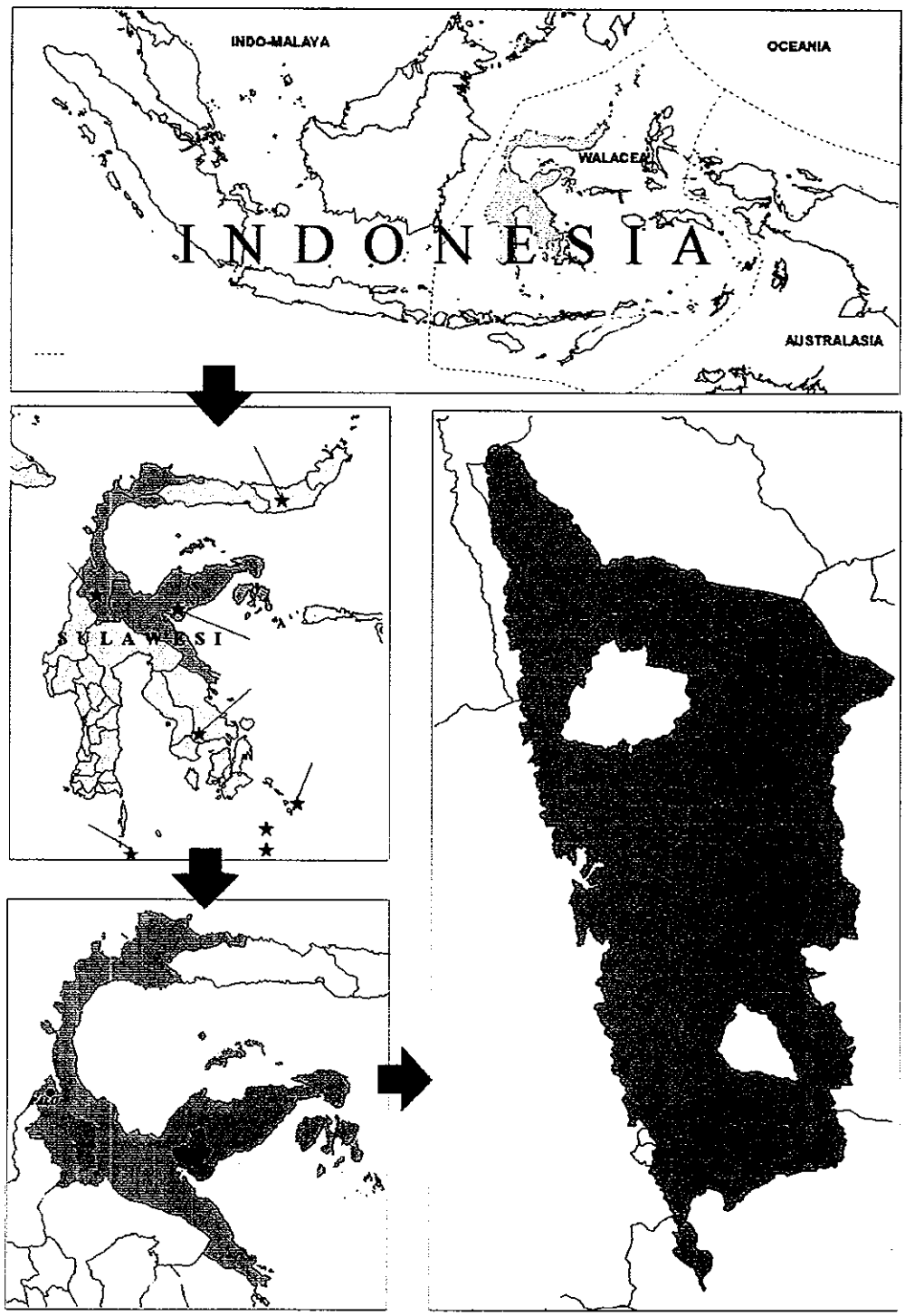
Source: Geologi Map, Geological Research and Development Centre (1997)

prepared by Lore Lindu National Park Authority from data in Lore Lindu National Park GIS (2001)



Map 9.5 : Predicted distribution of anoa in Lore Lindu National Park

Source : Burton (2001)


INDO-MALAYA
OCEANIA
WALACEA
INDONESIA
AUSTRALASIA
SULAWESI

APPENDIX VI

Svara Lore Lindu – FKTNLL Publication

Bulletin SVARA Lore Lindu

Media Informasi Lingkungan dan Masyarakat

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SVARA Lore Lindu

DITERBITKAN OLEH

Forum Kemitraan Taman Nasional Lore Lindu Sebagai media Informasi Lingkungan dari Masyarakat

TIM REDAKSI
Shadiq
Duncan Neville,
Natzir Abbas,
Agung Wibowo,
M Yamin Paada,
Faisal A Alwi
Iben Biawak,
Iksan Mentong,
Indra.

Alamat Redaksi
Jl. Tanjung Turuteika II No 8
PALU-SULAWESI TENGAH
Telephone 0451 454036
Email: fktnll@palu.wasantara.net.id

Dicetak di Percetakan Negara Cabang Palu
Isi diluar Tanggung Jawab Percetakan

Salam Redaksi

Apalagi yang hangat?. Tidak ada, kecuali informasi kepada semua pihak tentang kemajuan ataupun kemuduran dari kegiatan yang ada di kawasan TNLL dan masyarakat kita yang ada di dalam dan di luar kawasan TNLL.

Seperti edisi sebelumnya, kali ini SVARA Lore Lindu mencoba mengangkat beberapa peristiwa informasi dan percikan pemikiran yang berhubungan langsung dengan kawasan TNLL, selanjutnya apa yang kami sajikan diharapkan menjadi bahan diskusi bagi para pihak.

Kami dari redaksi juga mengucapkan terima kasih atas kritikan dan saran yang masuk ke meja redaksi, ada hal yang menarik dari sekian banyak pertanyaan, Svara Lore Lindu maknanya apa?, Svara Lore Lindu kami ambil dari kata Svara artinya bunyi atau berita, dimana huruf V umum di pakai di tanah kaili seperti Tawaeli menjadi Tavaeli, Tuva dari Tuwa dan sebagainya.

Terima Kasih

Surat Pembaca

Kepada Yth,
Ketua DP FKTNLL

1. Kami sampaikan penghargaan yang sebesar-besarnya atas inisiatif saudara untuk menerbitkan bulletin yang berkaitan dengan Lore Lindu mulai awal tahun 2002.
2. Kemungkinan besar bulletin tersebut adalah satu-satunya bulletin berkaitan dominan dengan Taman Nasional di Indonesia yang diterbitkan oleh lembaga forum di luar lembaga TN.
3. Kami sependapat bahwa bulletin tersebut sangat penting untuk publikasi sekaligus sosialisasi kebijakan, aturan serta kesepakatan masyarakat di sekitar TN.Lore Lindu.
4. Agar dapat terfokus pada UPT Balai TN Lore Lindu yang lebih bertanggungjawab pada legitimasi kebijakan, maka kami sarankan agar bulletin tersebut ada rubric khusus untuk informasi yang terkait misalnya ***Berita Balai***

Demikian atas kerjasamanya kami sampaikan terima kasih

Kepala Balai TNLL.
Ir Banjar Yulianto Laban, MM

Untuk usulan Berita Balai, akan kami bahas dalam rapat redaksi.

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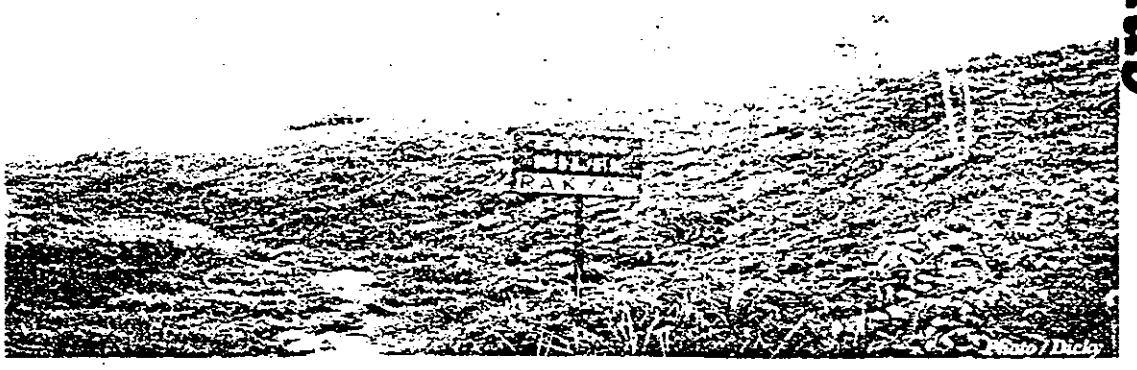
Dengan Dalil Reboisasi, PD Sulteng Caplok Tanah Rakyat

Marena: Ibarat Jauh Panggang dari Api

FOKUS



Seorang renta yang duduk di bawah pohon rindang dengan amat setia menunggu dimulainya upacara *gane-gane* di tanah rakyat Marena. Siang itu darah segar dari seekor hewan kurban mengalir di tanah leluhur mereka, menandai peresmian pemukiman baru mereka dinyatakan sah secara adat.

Hampir 30 tahun warga Marena hanya dijadikan penonton di tanah mereka sendiri dan tidak mampu lagi menahan ketidakpastian status tanah yang mereka miliki, akhirnya warga melakukan *reclaiming* (pendudukan kembali) di atas tanah mereka.

Dengan melakukan upacara Poranga Bou, yaitu menyembelih seekor hewan untuk (upacara adat) yang dihadiri oleh seluruh warga Marena, tokoh masyarakat adat Ngata Toro, Tompu dan dataran Kulawi beserta beberapa aktivis ornop di Kotamadya Palu. (20/1/02)

Menurut salah seorang tokoh masyarakat Marena, Rince Lancea (43) *reclaiming* dilakukan warga karena tanggapan pemerintah provinsi Sulteng sampai saat ini belum menemui titik terang dan kepastian, sedangkan warga saat ini sangat terdesak dengan kebutuhan lahan.

Rince, Kadus Marena

Selain itu, tambah Rince, warga Marena selama ini sulit membuka lahan baru disebabkan oleh batas dusun Marena diapit oleh kawasan Taman Nasional Lore Lindu dan lahan perkebunan cengkeh PD Sulteng.

"Kalau kami mencoba untuk membuka lahan di kawasan TNLL, dampaknya sangat buruk bagi kami, bisa jadi terjadi tanah longsor dari sebelah timur desa ini, dan kami sadar bahwa selama ini air dari TNLL-lah yang memberikan suplai untuk kebutuhan pertanian dan rumah tangga kami", ungkapnya.

Rince mejelaskan bahwa proses penguasaan lahan rakyat Marena berawal dari program rehabilitasi lahan tidur pada tahun 1970 oleh Dinas kehutanan yang masuk ke wilayah kecamatan Kulawi dan mulai melakukan pembebasan lahan-lahan masyarakat. Proses pembebasan diwarnai dengan tindakan kekerasan dan intimidasi, sebahagian pemilik lahan juga tidak memperoleh ganti rugi, kalaupun ada hanya memperoleh ganti rugi itupun dengan nilai yang sangat rendah yaitu Rp 2500/Ha.

Selanjutnya pada tahun 1971 pengolahan perkebunan dimulai dengan pembibitan komoditi cengkeh, hingga pada akhirnya pada tahun 1981 dinas Kehutanan mengalihkan Hak guna usaha kepada BUMD (PD sulteng) dan perkebunan cengkeh mulai tidak produktif dan akhirnya kegiatan pengolahan dan perawatan dan pengelolaan *mulai berhenti*.

Menghadapi persoalan itu, bersama dengan masyarakat Sungku dan Watuwali, rakyat Marena berupaya melakukan perlawanan yang dieksperiskan dalam berbagai tindakan-tindakan yang sifatnya persuasife maupun konfrontatif walaupun dalam skala kecil dan tertutup. Dalam kurung waktu 31 tahun di desa Sungku dan dalam 27 tahun di Marena, tercatat beberapa tindakan yang dilakukan warga sebagai ekspresi perlawanan terhadap proses transformasi agraria, dan dominasi penguasan tanah di wilayah mereka.

BEST AVAILABLE COPY

Di ujung perjuangan panjang mereka itulah, akhirnya warga Marena pasca reclaiming melakukan perancangan konsep tata ruang untuk lahan tersebut, dan melakukan upacara *Mo Ra Ngata Bou*, sekaligus meresmikan pembukaan lahan perkampungan baru diatas lahan perkebunan eks PD Sulteng.

Ekses Dari Ketimpangan Lahan

Banyaknya implikasi yang timbul akibat dominasi penguasaan tanah merupakan cikal bakal lahirnya tuntutan masyarakat. ketimpangan itu diciptakan oleh dominasi pemilikan dan penguasaan lahan di Marena: termasuk Watuwali dan Makuhi ternyata mempengaruhi berbagai segi kehidupan masyarakat, dari segi ekonomi mengakibatkan keterbatasan lahan memberikan dampak rendahnya ketahanan pangan serta tingkat pendapatan petani, hal itu disebabkan minimnya kapasitas produksi yang antara lain dikarenakan kurangnya lahan pertanian, dari sisi sosial, petani yang tidak memiliki lahan terpaksa melakukan migrasi ke tempat lain dan menjadi buruh upahan dan bahkan ada yang menganggur di tanah lelehurnya.

Selain itu, meningkatnya ancaman banjir dan tanah longsor belakangan ini menimbulkan kecemasan warga setempat, apalagi beberapa kerusakan dan kerugian sudah terjadi yang menghayutkan tanaman warga dan telah mendekati rumah warga. Keterbatasan lahan juga mendorong warga yang bertani untuk mencari sumber penghidupan lain, seperti pengelolaan hasil hutan, hal ini meningkatkan tekanan terhadap kawasan TNLL.

Berjuang Bersama Desa Lain

Proses reclaiming lahan perkebunan PD Sulteng dilakukan secara simbolis di Watuwali, desa Sungku Kecamatan Kulawi oleh sekitar 600-an petani, masyarakat adat dari desa Watuawali, Makuhi dan Marena, prosesi itu juga dihadiri 50-an undangan dari kalangan pemerintah, masyarakat dan Ornop pada tanggal 30 oktober 2001.

Sebahagian warga Kulawi yang mengadiri prosesi itu mengenakan pakaian adat, proses itu juga dimeriahkan dengan pagelaran musik bambu, pidato politik oleh wakil ketiga dusun serta dihadiri aparat desa dan kecamatan, dan di ujung acara tiga wakil warga membacakan deklarasi petani dan masyarakat adat kulawi dan diakhiri pemasangan papan bertuliskan "*tanah milik rakyat*".

Selanjutnya di Marena bersama dengan ornop pendamping (LPA Awam Green), warga Marena mencoba menyusun konsep tata ruang untuk lahan dan melakukan pembagian tanah secara adil dan bijaksana. Pembagian tanah warga diberikan kepada 60 KK seluas 15 x 15m / KK dan sisanya untuk dua buah sarana ibadah, sekolah dan sebuah Bantaya.

Total tanah yang di*reclaiming* warga Marena seluas 125 Ha itu, direncanakan warga akan mulai aktif melakukan penanaman pasca reclaiming, sambil menunggu legitimasi hak atas tanah dari pemerintah.

Laporan: Dicky,Indra,Tahta,Iben

□Tanty Thamrin :

PETANI DAN TANAHNYA

Reclaiming Masyarakat Marena hanya salah satu contoh dari dihilangkannya akses masyarakat terhadap tanah di tempat mereka hidup dan berkehidupan dan betapa tidak *membuminya* Pasal 33 UUD 1945, padahal sudah sangat harus disadari bahwa sumberdaya alam yang tersedia walaupun memang rahmat dari Tuhan, bukan berarti tidak ada pemiliknya. Sudah berabad-abad lamanya masyarakat lokal mengelola dan mempunyai akses langsung ke sumber daya alam disekitarnya. Karena itu hak-hak mereka harus diakui. Bila kemudian mereka masyarakat petani di Marena melakukan reclaiming di tanah yang dikuasai tanpa proses yang jelas oleh PD. Sulteng, sebab salah satu dari azas Reclaiming adalah adanya hubungan sejarah tentang *penguasaan dan pengelolaan* yang erat antara petani yang mereclaim dan tanah yang direclaimnya.

Upaya Reclaiming tersebut juga menjadi contoh kongkrit di lapangan yang membuktikan bahwa kepentingan dan kebutuhan petani akan lahan tidak harus dan tidak perlu di konfrontasikan dengan upaya konservasi, selama semua pihak yang terlibat masih bisa berpikir jernih, bertindak dengan hati nurani dan tidak mengedepankan kepentingan kelompok, isu atau apa yang disebut *gerakan*

Apa yang dikemukakan diatas, pada dasarnya bagaimana melihat persoalan yang ada, Kalau mengutip Salindeho,1987 mengatakan tanah adalah benda yang bernilai ekonomis, sekaligus bersifat magis religio kosmis, tanah pula yang memberi getaran di dalam kedamaian dan sering pula memberi goncangan di dalam masyarakat. Selain itu menurut Yudi Raharjo, (1999) mengatakan bahwa tanah menjadi soal hidup-mati, menyatu dengan peluh sehingga

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untuk mempertahankan haknya atas tanah, rakyat bersedia melakukan apa saja .

Tanah dan masyarakat hukum adat saling memiliki korelasi yang signifikan, yang menciptakan suatu hak untuk menggunakan, menguasai, memelihara sekaligus mempertahankan hak tersebut bagi kelanjutan hukumnya. Hak rakyat atas tanah, merupakan hak asli dan utama dalam hukum adat (Hak Ulayat). Disamping itu hak atas tanah merupakan sumber hak atas yang lainnya, misalnya : hak memungut hasil dan mengolah.

Bila dicermati, menurut Karl Popper rakyat sebenarnya rasional, kekerasan hanya lahir bila argumentasi telah mati, karena dalam alam pikiran rakyat, tanah adalah segala-galanya. Tanah dapat dikucuri oleh peluh dan darahnya. Dititik mana argumentasi telah mati atau dimatikan disanalah kekerasan dimulai, karena bagi rakyat kekerasan adalah lanjutan dari argumentasi.

Strategi survival masyarakat petani cenderung memegang teguh kearifan tradisional yang di tradisikan. Petani amat takut terhadap perubahan yang akan mengganggu keseimbangan, *terutama keseimbangan* hubungan antara tanah, alam dan sekitarnya. Pada waktu yang bersamaan juga akan berusaha mempertahankan hubungan sosial yang bersifat tradisional.

Menurut Redfield, 1982, ada tiga nilai yang melekat pada diri masyarakat petani dan berpengaruh pada pola kehidupannya, pertama sikap yang intim dan hormat terhadap tanah, dalam arti pekerjaan pertanian yang digeluti merupakan pekerjaan mulia. Kedua sikap yang lebih menekankan pada kegiatan yang bersifat produktif, dengan acuan utama berupa usaha yang dapat menghasilkan sesuatu, dan yang ketiga nilai religius di mana alam adalah milik manusia dan Tuhan, sehingga dengan memberikan rasa hormat dan mengolah tanah merupakan ungkapan tindakan religius.

Batasan umum yang dihasilkan dari Lokakarya Pengembangan Sumberdaya Hukum Masyarakat Adat tentang Pengelolaan Sumberdaya Alam di dalam *'Kawasan' Hutan* di luar Pulau Jawa di Tana Toraja pada medio Mei 1993 menyimpulkan bahwa Kultur kehidupan petani di semua tempat secara umum dapat dikatakan sama. Dimana terdapat ikatan antara tanah serta keterikatan pada desa dan komunitas lokal keluarga dan masyarakat adat sebagai sentral, dan berasumsi bahwa akan dapat tetap hidup bila bekerja mengolah tanah yang mereka *tempati semenjak kecil. Keluarga dan* masyarakat adat merupakan tempat untuk kembali dan berkehidupan, sehingga apabila terjadi perubahan hak atas tanah yang merupakan tanah hak ulayat, akan menjadi *Basis KonflikPetani.*

Membangun Wawasan Baru Lewat Museum

Museum sebagai salah satu pusat informasi masyarakat dalam perkembangannya mempunyai andil yang besar dalam peningkatan pengetahuan masyarakat, sebagai sarana pendidikan, museum memberikan peningkatan pengetahuan melalui berbagai media pameran yang mengadung nilai budaya, sejarah dan ilmu pengetahuan.

Melalui program conservation awereness & education programe, The Nature Conservancy yang merupakan lembaga international dan bergerak di bidang pelstraian Taman Nasional Lore Lindu (TNLL) berupaya membangun kerjasama dengan pihak museum untuk mengembangkan suatu pusat informasi lingkungan bagi masyarakat, dengan didasari pada kenyataan bahwa sebahagian masyarakat belum memahami potensi, manfaat dan fungsi penting TNLL dan lingkungan pada umumnya. Melalui program pembuatan panel-panel konservasi di museum provinsi Sulawesi Tengah merupakan realisasi ide dalam penyebaran media informasi melalui museum sebagai sarana edukasi bagi masyarakat umum.

Pameran yang menampilkan berbagai informasi tentang TNLL dan lingkungan diharapkan menginformasikan potensi TNLL dan lingkungan kepada masyarakat, dengan mengembangkan fungsi dan manfaat museum tidak hanya pada pemberian informasi kebudayaan dan sejarah saja, *namun lebih* luas sebagai pusat informasi lingkungan, dan diharapkan mampu meningkatkan kesadaran dan kebanggaan terhadap pentingnya melestarikan TNLL dan lingkungan serta berupaya melibatkan berbagai pihak dalam mengkampanyekan TNLL dan lingkungan melalui pengembangan fungsi dan manfaat museum sebagai pusat informasi lingkungan. *(dicky/tahta)*

UNDANG UNDANG REPUBLIK INDONESIA
NOMOR 41 TAHUN 1999

TENTANG KEHUTANAN*

BAB I
KETENTUAN UMUM
Bagian kesatu
Pengertian

Pasal 1

Dalam undang-undang ini dimaksud dengan :

1. kehutanan adalah system pengurusan yang bersangkut paut dengan hutan, kawasan hutan, dan hasil hutan yang diselenggarakan secara terpadu.
2. hutan adalah suatu kesatuan ekositem berupa hamparan lahan berisi sumber daya alam hayati yang didominasi pepohonan dalam persekutuan alam lingkungannya, yang satu dengan lainya tidak dapat dipisahkan.
3. kawasan hutan adalah wilayah tertentu yang ditunjuk dan atau ditetapkan oleh pemerintah untuk pertahankan keberadaanya sebagai hutan tetap.
4. hutan Negara adalah hutan yang berada pada tanah yang tidak dibebani hak atas tanah.
5. hutan hak adalah hutan yang berada pada tanah yang dibebani hak atas tanah.
6. hutan adat adalah hutan Negara yang berada dalam wilayah masyarakat hukum adat.
7. hutan produksi adalah kawasan hutan yang mempunyai fungsi pokok memproduksi hasil hutan.
8. hutan lindung adalah kawasan hutan yang mempunyai fungsi pokok sebagai perlindungan system penyangga kehidupan untuk mengatur tata air, mencegah banjir, mengendalikan erosi, mencegah intrusi air laut, memelihara kesuburan tanah.
9. hutan konservasi adalah kawasan hutan dengan ciri khas tertentu, yang mempunyai fungsi pokok pengawetan keaneka ragaman tumbuhan dan satwa serta ekosistemnya.
10. kawasan hutan suaka adalah hutan dengan ciri khas tertentu, yang mempunyai fungsi pokok sebagai kawasan pengawetan keanekaragaman tumbuhan dan satwa serta ekositemnya, yang juga berfungsi sebagai wilayah system penyangga kehidupan.
11. kawasan hutan pelestarian adalah hutan dengan ciri khas tertentu, yang mempunyai fungsi pokok perlindungan system penyangga kehidupan, pengawetan keaneka ragaman jenis tumbuhan dan satwa, serta pemanfaatan secara lestari sumber daya alam hayati dan ekosistemnya.
12. taman buru adalah kawasan hutan yang ditetapkan sebagai tempat wisata berburu.
13. hasil hutan adalah benda-benda hayati, nonhayati dan turunanya, serta jasa yang berasal dari hutan.
14. pemerintah adalah pemerintah pusat.
15. menteri adalah menteri yang diserahi tugas dan tanggung jawab di bidang kehutanan.

Bagian kedua
Asas dan tujuan

Pasal 2

Penyelenggaraan kehutanan berasaskan manfaat dan lestari, kerakyatan, keadilan, kebersamaan, keterbukaan, dan keterpaduan.

Pasal 3

Penyelenggaraan kehutanan bertujuan untuk sebesar-besar kemakmuran rakyat yang berkeadilan dan berkelanjutan dengan :

a. menjamin keberadaan hutan dengan luasan yang cukup dan sebaran yang proporsional;
b. mengoptimalkan aneka fungsi hutan yang meliputi fungsi konservasi, fungsi lindung, dan fungsi produksi untuk mencapai manfaat lingkungan, sosial, budaya, dan ekonomi, yang seimbang dan lestari;
c. meningkatkan daya dukung daerah aliran sungai;
d. meningkatkan kemampuan untuk mengembangkan kapasitas dan keberdayaan masyarakat secara partisipatif, berkeadilan, dan berwawasan lingkungan sehingga mampu menciptakan ketahanan terhadap akibat perubahan eksternal; dan
e. menjamin distribusi manfaat yang berkeadilan dan berkelanjutan.

Bagian ketiga
Penguasaan hutan

Pasal 4

(1) semua hutan didalam wilayah republic Indonesia termasuk kekayaan alam yang terkandung di

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dalamnya di kuasai oleh Negara untuk sebesar-besar kemakmuran rakyat.

(2) Penguasaan huatn oleh Negara sebagai mana dimaksud pada ayat (1) memberi wewenang kepada pemerintah untuk:
   a. mengatur dan mengurus segala sesuatu yang berkaitan denngan hutan, kawasan hutan dan hasil huatn ;
   b. menetapkan status wilayah tertentu sebagai kawasan hutan atau kawasan hutan sebagai bukan kawasan hutan ; dan
   c. mengatur dan menetapkan hubungan-hubungan hukum antara orang dengan hutan, serta mengatur perbuatan-perbuatan hukum mengenai kehutanan.

(3) penguasaan hutan oleh Negara tetap memperhatikan hak masyarakat hukum adat, sepanjang kenyataannya masih ada dan diakui keberadaanya, serta tidak bertentangan dengan kepentingan nasional.

BAB II
STATUS DAN FUNGSI HUTAN

Pasal 5

(1) hutan berdasarkan statusnya terdiri dari:
   a. hutan Negara, dan
   b. hutan hak

(2) hutan Negara sebagai mana di maksud pada ayat (1) huruf a, dapat berupa hutan adat

(3) pemerintah menetapkan status hutan sebagai mana di maksud pada ayat (1) dan ayat (2); dan hutan adat ditetapkan sepanjang menurut kenyataannya masyarakat hukum adat yang bersangkutan masih ada dan diakui keberadaanya

(4) apabila dalam perkembangannya masyarakat hukum adat yang bersangkutan tidak ada lagi, maka hak pengelolaan hutan dapat skembali kepada pemerintah.

Pasal 6

(1) hutan mempunyai tiga fungsi, yaitu:
   a. fungsi konservasi,
   b. fungsi lindung, dan
   c. fungsi produksi.

(2) pemerintah menetapkan hutan berdasarkan fingsi pokok sebagai berikut:
   a. hutan konservasi,
   b. hutan lindung, dan
   c. hutan produksi.

Pasal 7

Hutan konservasi sebagai mana di maksud dalam Pasal 6 ayat (2) huruf a, terdiri dari:
   a. kawasan suaka alam,
   b. kawasan huatn pelestarian alam, dan
   c. taman buru.

Pasal 8

(1) pemerintah dapat menetapkan kawasan hutan tertentu untuk tujuan khusus.

(2) Penetapan kawasan hutan dengan tujuan khusus, sebagai mana di maksud pada ayat (1) diperlukan untuk kepentingan umum seperti:
   a. penelitian dan pengembangan,
   b. pendidikan dan latihan, dan
   c. religi dan budaya.

(3) kawasan hutan dengan tujuan khusus sebagai mana di maksud pada ayat (1), tidak mengubah fungsi pokok kawasan hutan sebagaimana di maksud dalam Pasal 6

Pasal 9

(1) untuk kepentingan pengaturan iklim mikro, ekstetika, dan resapan air, di setiap kota ditetapkan kawasan tertentu sebagai hutankota.

(2) Ketetntuan lebih lanjut sebagaimana dimaksud pada ayat (1), diatur dengan peraturan pemerintah

Ragam

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Sahabat Alam

Mengintip Kehidupan Polisi Kehutanan di TNLL

Thamrin dan Filosofi Hidup Sederhana

Hidupnya seperti kehidupan kebanyakan dari orang Indonesia, di cobanya mengingat-ingat hidupnya yang baik untuk ceritanya. Prinsip-prinsip hidupnya sederhana saja, di mana ia akan memulai ceritannya?, Tak ada yang istimewa menurutnya, dengan puisi hasil goresan tanganya itu tersimak kegelisahan dan ketegaran yang mengekalkan ungkapan abadi

POLHUT,

Selama aku menjadi Polhut
Aku akan ceritakan padamu
Bagaimana kisah diriku
Di kota atau di desa
Di kala pengusaha datang merayu
yang menghalagi cita-citaku
Dengan jabatan yang sekecil itu
Aku akan tetap berjuang untuk
mengabdi kepada nusa dan bangsa

Menurut Thamrin tak ada yang pantas untuk diceritakan, sebab pada dasarnya berbagai macam peristiwa yang dilalui selama bertugas sebagai polisi hutan berlangsung biasa-biasa saja, tetapi di balik kesederhanaannya, Thamrin adalah sosok yang penuh kharisma , berhadapan dengan Thamrin adalah berhadapan dengan orang yang antusias untuk menjawab apa saja, bercerita apa saja, bahkan seusai wawancara di Pos PHPA Bobo tempat ia bertugas . Minggu (10/2) lalu, dia menitipkan salam dan pesan ke kawan-kawan aktivis lingkungan di Palu untuk datang berkunjung ke tempatnya.

Di Bobo bersama dengan istrinya, Nuraeni yang telah memberikan ia dua orang anak Abdul Hayan (12) dan Nurnaningsih (2). Thamrin menjalankan tugasnya sehari-hari sebagai polisi hutan dan tinggal di sebuah rumah yang sederhana tepat di belakang pos Pos PHPA.

Berawal dari tahun 1983, Putra kelahiran Pakuli, 19 Oktober 1950 ini, memulai tugasnya sebagai polisi hutan di desa Pakuli, kemudian beberapa tahun kemudian ia sempat menikmati masa tugas di beberapa desa lain seperti Tongoa, Watubose, Sintuwu, Matauwe. Sebagai seorang Polhut di TNLL, ia merasa bahwa pekerjaan yang digeluti sekarang ini banyak memerlukan ketabahan dan sedikit keberanian, dan ia mengakui disegani oleh masyarakat karena Thamrin dikenal petugas yang tidak mau menerima suap dari orang-orang yang melakukan praktek illegal logging.

"Karena saya dikenal tidak mau menerima suap, jadi ada banyak masyarakat yang segan dengan saya, tapi saya yakin banyak yang memandang sinis dengan saya" ungkapnya.

Bagi Thamrin, hidup dan tinggal dengan masyarakat di sekitar kawasan TNLL bukan sesuatu yang perlu ditakutkan. Ia yakin betul bahwa masyarakat yang sering masuk merambah dan berburu, akar masalahnya hanyalah desakan ekonomi. Yang penting sekarang adalah bagaimana melakukan pendekatan ke masyarakat.

"Berdiri tegak memperjuangkan pendirian adalah pegangan saya dalam menjalankan tugas selama ini, karena sesungguhnya hidup itu hanya berarti bila di isi dengan pendirian dan perjuangan", ujarnya berfilosofi.

Menanggapi perambahan yang sering terjadi di dalam kawasan TNLL, Ia mengharapkan agar semua intansi dan masyarakat yang peduli dengan konservasi alam ikut serta berperan dalam menjaga kawasan TNLL.

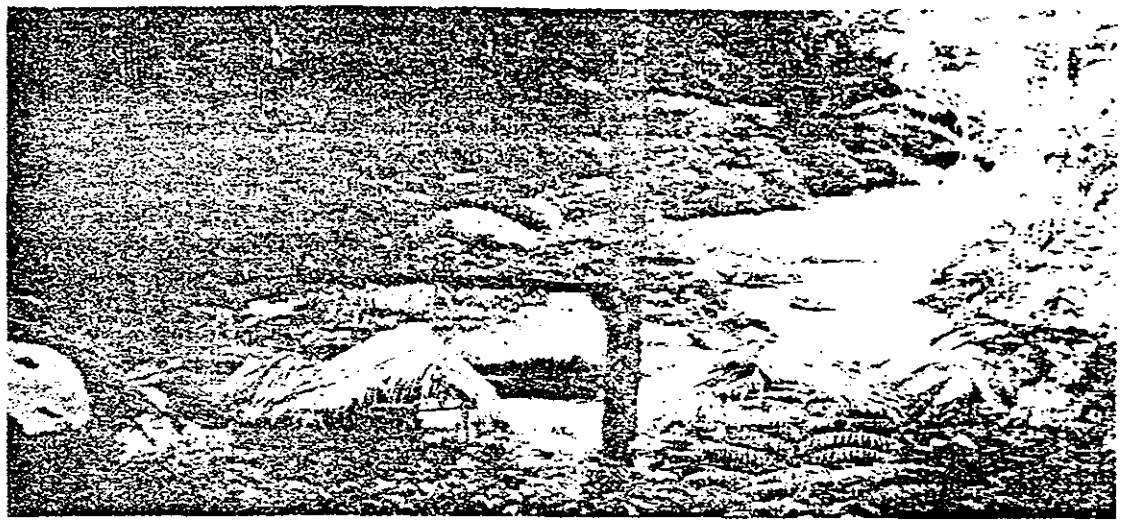
Selama ia bertugas di TNLL, Thamrin juga banyak aktif dalam kegiatan yang di lakukan oleh berbagai lembaga/ instansi yang bergerak di bidang konservasi dan pemberdayaan masyarakat. Thamrin banyak dikenal akrab dengan kalangan LSM dan Pecinta Alam; tidak mengherankan jika ia kerap terlibat bertegur sapa dengan para aktivis LSM dan PA , baik di tempat ia bertugas maupun di kantor atau pertemuan-pertemuan.

Laporan : Tahta/ Damar

Opini

Mengembangkan Akuntabilitas
Pengelolaan Taman Nasional Lore Lindu

Oleh : Agung Wibowo*



Membicarakan Taman Nasional Lore Lindu, berarti kita juga membicarakan persoalan hutan. Oleh sebab itu, marilah kita lebih dahulu melihat persoalan hutan dan kehutanan Indonesia secara umum. Persoalan kehutanan di Indonesia pada saat ini menunjukkan kecenderungan yang semakin memprihatinkan . Forest Watch Indonesia mencatat bahwa tingkat kerusakan hutan di Indonesia sudah sangat parah, yaitu 1,7 – 2,4 juta hektar per tahun . Dilaporkan juga bahwa pembukaan hutan akibat pembalakan illegal mencapai 800.000 hektar per tahun, sementara itu data dari Departemen Kehutanan menyebutkan bahwa kerugian yang diakibatkan dari pembalakan liar mencapai Rp 30, 42 trilyun per tahun yang dihitung dari jumlah kayu illegal sebanyak 50,7 juta m3 per tahun.

Persoalan kehutanan di Indonesia pada saat ini menunjukkan kecenderungan yang semakin memprihatinkan . Forest Watch Indonesia mencatat bahwa tingkat kerusakan hutan di Indonesia sudah sangat parah, yaitu 1,7 – 2,4 juta hektar per tahun . Dilaporkan juga bahwa pembukaan hutan akibat pembalakan illegal mencapai 800.000 hektar per tahun, sementara itu data dari Departemen Kehutanan menyebutkan bahwa kerugian yang diakibatkan dari pembalakan liar mencapai Rp 30, 42 trilyun per tahun yang dihitung dari jumlah kayu illegal sebanyak 50,7 juta m3 per tahun.

Sebetulnya penyebab kerusakan hutan sangat kompleks, baik karena proses alam maupun human driven (akibat ulah manusia). Proses alami biasanya akan berjalan seimbang dengan proses pemulihan kerusakannya, sehingga kesimbangan fungsi ekologis tetap terjaga. Namun kasus di Indonesia ternyata menunjukkan, bahwa faktor pendorong kerusakan hutan di Indonesia saat ini lebih didominasi akibat faktor manusia, diantaranya adalah lemahnya kemampuan pemerintah dalam mengelola hutan, kebijakan sentralistik, terpinggirkannya masyarakat lokal dalam kegiatan pengelolaan hutan, pelaksanaan otonomi daerah yang serampangan, lemahnya kontrol publik, lemahnya penegakan hukum, penyalahgunaan kekuasaan, korupsi, tarik menarik kepentingan pusat dan daerah, belum terjadinya sinergi antara faktor ekonomi, lingkungan dan sosial dalam pembangunan, konflik masyarakat dengan hutan, lemahnya penegakan hukum, lemahnya kemampuan pengelolaan hutan oleh pemerintah, melemahnya kewibawaan kelembagaan negara, kelembagaan lokal belum mampu berperan sebagai alternatif

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pengorganisasian masyarakat; konflik tenurial yang belum jelas arah penyelesaiannya; tekanan masyarakat internasional akibat salah urus pengelolaan hutan; program kehutanan yang tidak jelas arahnya, konversi fungsi hutan dan lain sebagainya. Bisa dikatakan bahwa hutan di Indonesia pada saat ini ada dalam kondisi *open access* , semua orang merasa bahwa mereka bisa memanfaatkan hutan sesuka hati mereka. Sementara itu pemerintah juga terlihat kikuk dalam melaksanakan penegakan hukum. Kondisi ini mencerminkan, bahwa sebagai suatu kesatuan masyarakat, maka saat ini masyarakat Indonesia sedang berada dalam kondisi sakit. Kontrol masyarakat maupun kemampuan lembaga negara dalam pengelolaan hutan sangat lemah. Berbagai macam peraturan nampak tidak "berbunyi" di lapangan dikalahkan oleh kekuatan persekongkolan yang sangat dominan.

Dengan wajah penyelenggaraan kehutanan yang demikian, bilamana tak ada upaya perbaikan diperkirakan bahwa hutan Indonesia akan habis dalam tempo 10 - 20 tahun. Kalau saat ini kita masih bisa mengatakan bahwa kita memiliki hutan tropis terbesar kedua di bumi dan merupakan negara megabiodiversity, lantas dengan wajah kehutanan seperti tersebut diatas apakah yang bisa dibanggakan ? Begitu kompleksnya persoalan, sehingga kita merasa seperti terjebak pada pusaran arus mematikan yang membingungkan.

Yang lebih menyedihkan adalah bahwa kawasan konservasipun dijadikan sasaran penjarahan. Padahal kawasan konservasi sebagaimana fungsinya, yaitu sebagai kawasan penyangga sistim kehidupan seharusnya keutuhan wilayah dan fungsinya harus dijaga.

Yayasan Katopasa Indonesia dalam studinya di Taman Nasional Lore Lindu tentang praktek pembalakan illegal menunjukkan bahwa dalam rentang waktu antara 27 Juli – 18 Oktober 2001 kerugian dari nilai kayu yang diakibatkan dari praktek tersebut mencapai Rp 162.350.000.- sedangkan dari nilai rotan adalah Rp 29.700.000.-. Angka-angka tersebut bisa meningkat lebih tinggi karena belum dihitung jumlah kayu dan rotan yang tidak tertangkap. Sementara itu dalam prakteknya, pembalakan illegal tersebut menunjukkan adanya suatu persekongkolan yang melibatkan masyarakat, pedagang, TNI-AD, pengusaha saw-mill serta indikasi kelambanan penegakan hukum. Kejadian dalam skala mikro ini tak jauh berbeda dengan gambaran nasional pengelolaan hutan. Kasus Dongi-dongi adalah contoh lain dari carut marutnya persoalan di TNLL.

Kita harus meletakkan hutan pada alasan keberadaannya. Dalam ekosistem global, hutan jelas mempunyai fungsi yang sangat penting baik fungsi ekologis, sosial budaya dan ekonomi dan semua itu bermanfaat, untuk mendukung komunitas lokal maupun global. Oleh sebab itu ada faktor kemutlakan disini yaitu, bahwa keberadaan dan keutuhan hutan adalah keniscayaan. Dan saya kira hal ini sudah menjadi *common ground*. Persoalan akan muncul ketika ada pihak-pihak yang memaksakan kepentingannya tanpa memperhitungkan ketiga fungsi tersebut diatas secara seimbang.

Memang sangat sulit untuk menetapkan titik optimal kesetimbangan ketiga fungsi tersebut, namun ini harus dilakukan supaya pengelolaan hutan bisa dilakukan berdasarkan obyektifitas untuk memastikan kelestariannya. Model pengelolaan yang disusun berdasarkan azas kepentingan dari para pemangku kepentingan mempunyai kecenderungan untuk terjadinya penindasan oleh satu pihak kepada pihak lainnya.

Di era sekarang ini model pengelolaan hutan yang diterapkan oleh rejim Orba dengan topangan militer dianggap telah gagal menjamin kelestarian hutan Indonesia, sehingga tuntutan pengelolaan hutan oleh rakyat dan lokal makin menguat. Namun perlu disadari bahwa meskipun tuntutan ini makin menguat, ada satu hal yang perlu dikembangkan yaitu kontrol. Bilamana tak dibangun sistim kontrol yang baik, maka akan muncul kediktatoran dan kesewenang-wenangan model baru. Pengelolaan hutan oleh komunitas lokal memang akan lebih menjamin terjadinya keadilan namun mereka juga perlu dilengkapi dengan perangkat kontrol untuk akuntabilitas atas hak yang mereka peroleh.

Perangkat tersebut diwujudkan dalam bentuk *Kriteria dan Indikator* (K&I) pengelolaan hutan yang lestari. Sebenarnya K&I adalah salah satu perangkat yang dikembangkan untuk melakukan penguatan kelembagaan masyarakat. Karena dengan K&I , suatu komunitas selain memperoleh hak atas manfaat yang bisa diambil dari kegiatan pengelolaan juga dituntut untuk bisa menjalankan akuntabilitas, tanggung jawab dan transparasi dalam pengelolaan hutan.

Salah satu lembaga yang telah mengembangkan K&I untuk pengelolaan hutan oleh masyarakat adalah CIFOR. Disebutkan bahwa K&I dapat membantu masyarakat untuk merancang tujuan hutan lestari, memantau kinerja mereka, menilai informasi penting yang dikumpulkan dari penerapan K&I, belajar dari

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informasi yang dibutuhkan, menyesuaikan sistim pengelolaan mereka terhadap perubahan yang terjadi, membuat keputusan yang lebih baik menyangkut langkah di kemudian hari; dan berkomunikasi secara efektif tentang dampak faktor eksternal termasuk kebijakan hutan.

K&I yang baik mempunyai ciri-ciri adanya relevansi dengan komunitas setempat; memperhatikan daya dukung setempat; dapat dipahami dan digunakan; data yang digunakan mudah diperoleh dan dapat dipercaya; keberhasilan komunitas tersebut tidak merugikan komunitas yang lain. Oleh sebab itu penyusunannya harus dilakukan oleh komunitas yang bersangkutan.

Untuk TNLL, pengembangan K&I yang mampu menjamin keutuhan dan kelestarian TNLL sangat diperlukan. TNLL tak boleh hanya dilihat sebagai kesatuan adminitratif luasan hutan saja, namun juga harus dilihat sebagai fungsi ekosistemnya hutan. Penyelenggaraan pengelolaan TNLL yang memberikan keadilan bagi komunitas setempat sangat penting, namun pengelolaan TNLL yang menjamin kelestarian dan keutuhan TNLL adalah hal yang sangat penting pula untuk mendukung kelangsungan kehidupan komunitas setempat. Pengembangan K&I bisa dilakukan untuk masing-masing komunitas sesuai dengan rentang interaksinya dengan kawasan TNLL untuk kemudian digabungkan dengan K&I administrasi pengelolaan BTNLL.*(alfa_whisky)*

**Penulis adalah Dewan Pengurus FKTNLL*

Forum Kemitraan
Taman Nasional Lore Lindu
dan Seluruh Jaringan
Mengucapkan Selamat dan Sukses
kepada
Moesadat A .Korompot
Sebagai Ketua Terpilih
Badan Koordinasi Kelompok Pecinta Alam
BKKPA
Sulawesi Tengah
Periode 2002 - 2003

Forum Kemitraan
Taman Nasional Lore Lindu
Turut Berduka Cita Atas Meninggalnya
Bapak, KARIM YABU
Ayahanda Moh.Ariel
Anggota MAPALA SANTIGI FISIP UNTAD
Pada Tanggal 12 Februari 2002 di Palu

Info Sekretariat

Suksesi 2002 BKKPA Sulawesi Tengah

SETELAH masa kepengurusan periode 2001-2002 berakhir, akhirnya telah terpilih kembali ketua BKKPA Sulawesi Tengah hasil MUBES III, saudara Moesadat AK asal organisasi yayasan petualangan UGH Indonesia, untuk masa kepengurusan periode 2002-2003.

Dalam membantu menjalankan organisasi selain ketua umum terpilih, juga telah terpilih sekretaris umum Hardianto (O.P.A Artapala) dan Rahman (Wapa Spalacipa Tadulako) sebagai bendahara umum.

Sebagai organisasi penaung kelompok pecinta alam di Sulawesi Tengah, saat ini BKKPA Sulteng telah memasuki tahun keempat sejak didirikan pada tanggal 29 Januari 1999.

Selama kurung waktu tersebut, BKKPA Sulteng yang membawahi sekitar 50-an organisasi / lembaga Kelompok Pecinta alam di Sulteng telah dinahkodai oleh tiga orang ketua umum antara lain Andi Faisal dari yayasan petualangan *UGH Indonesia* (periode 1999-2000), Yohan Frederick dari K.P.A Tebing Putih (2000-2001) dan Moesdat AK (2001-2002).

Selanjutnya apakah program ke depan BKKPA Sulawesi Tengah ?, Menurut Moes sesuai dengan amanat Mubes III BKKPA di Ngata Baru, untuk periode sekarang ini akan memproritaskan program-program pengembangan sumber daya kelompok pecinta alam jaringan BKKPA Sulteng dalam beberapa kegiatan kepecintaalaman dan pelestarian lingkungan.

"Untuk periode ini peserta Mubes telah mempercayakan enam agenda kerja kepada kami sebagai pengurus, namun apa yang ditawarkan tersebut belum dapat kami kemukakan secara tehnis karena pembahasannya masih bersifat umum dan akan dibahas ke dalam rapat kerja bersama jaringan.

Namun pada dasarnya, tambah Moes kami akan berupaya menempatkan visi dan misi organisasi sebagai sebuah wadah yang berorientasi dalam bidang kepecintaalaman.

Mampukah BKKPA Sulawesi Tengah membawa keinginan beberapa jaringannya untuk mengembangkan kegiatan kepecintaalaman di provinsi ini, sudah barang tentu kita akan lihat bagaimana sepak terjang pengurus yang terpilih sekarang, dan tentu hal ini tidak akan berhasil tanpa dukungan dari KPA yang ada di Sulteng. *(Indra)*

BEST AVAILABLE COPY

❒ CARE Sosialisasikan ICDP 13 Desa Membangun Kemitraan Dalam Pengelolaan TNLL

Mengembangkan konservasi TNLL dan ekonomi masyarakatnya. CARE International perwakilan Palu meluncurkan program ICDP *(Integrated Conservation & development project)* di 13 desa di kecamatan Kulawi, disosialisasikan di hadapan tokoh masyarakat, aparat desa dan kecamatan, Kamis (7/2/01) di Baruga serba guna Kecamatan Kulawi.

Program ini di harapkan bisa menfasilitasi kapasitas lokal untuk mempertahankan sistem konservasi keragaman hayati yang cocok di wilayah yang dilindungi, dengan memperbaiki kehidupan keluarga di pedesaan yang tinggal di wilayah penyangga, selain itu ICDP melalui tujuan *antaranya* berupaya meningkatkan dan mendiversifikasi sumber penghidupan masyarakat untuk menjamin sumber penghidupan yang selaras dengan pengelolaan sumber daya hutan berkelanjutan.

CARE berharap program ini dapat meningkatkan dan mendiversifikasi sumber penghidupan masyarakat untuk menjamin sumber penghidupan yang serasi dengan pemanfaatan sumber daya hutan yang berkelanjutan, untuk itu juga diharapkan lembaga yang ada di desa dan LSM lokal dapat melakukan kegitan konservasi dan pemerintah lokal bisa mengakui kepentingan program ICD.

Menanggapi sosialisasi program itu, camat Kulawi, Drs. Livingstone mengatakan bahwa pemerintah kecamatan dan desa secara positif menyambut baik program dari CARE itu, sepanjang sesuai dengan aturan aturan yang berlaku dan di sepakati semua pihak

Menanggapi sosialisasi program itu ketua Forum Kemitraan Taman Nasional Lore Lindu, Shadiq yang di temui di Kulawi mengatakan bahwa apa yang di lakukan oleh CARE saat ini di harapkan bisa mengakomodir persoalan-persoalan yang ada di TNLL khususnya di 13 desa di mana mereka bekerja saat ini.

"Saya harap CARE tidak terfokus dengan program ICDP saja dan mengabaikan persoalan lain di luar konteks ICDP,sebab akan berpengaruh dengan program mereka , dan kerja sama dengan lembaga lokal harus di perkuat hubungan kemitraan itu harus di bangun sejak awal karena tanpa kemitraan semua akan sia-sia ungkap Shadiq. ***(tahta/dicky)***

❒AG, Kembangkan Obat Tradisional Memulihkan Sistem Sosial Masyarakat Adat Berbasis Ekologi

Sosialisasi program pengembangan potensi tumbuhan obat-obatan dan revitalisasi posisi pengobat tradisional di Pakuli, Minggu (9/2) lalu, berhasil mengungkap beberapa pemikiran dan usulan masyarakat Pakuli dalam pengembangan pengobatan dan pengembangan tumbahan tradisional.

Salah seorang *shando* (pengobatan tradisional, Muslimin, (42) mengungkapkan bahwa di Pakuli terdapat 40 jenis tumbuhan yang kerap digunakan untuk pengobatan tradisional.

Dari studi yang dilakukan LPA Awam Green pada bulan Mei-Februari 2000 lalu, telah mengindentifikasi tidak kurang dari 300 jenis tumbuhan, yang telah digunakan masyarakat Behoa,Tavelia, Moma serta Kaili sebagai bahan baku obat-obatan tradisional.

Tumbuhan obat alamiah, adalah bahan baku yang digunakan dalam sistem pengobatan tradisional. Hal ini kemudian menjadi faktor yang penting untuk mereposisi sistem pengobatan tradisional, dikaitkan dengan soal-soal peningkatan ekonomi, dengan tetap memelihara gagasan yang berwawasan ekologis.

Ada dua hal pokok yang perlu ditekankan dari penelitian itu, bahwa pengetahuan lokal *(indegenous knowlodge)* dibidang pengobatan dan obat-obatan yang dimiliki oleh masyarakat seharusnya dipandang sebagai asset intelektual yang harus dihormati, diakui, dilestarikan dan dikembangkan serta dilindungi oleh sistem hukum yang tegas dan jelas, dan potensi bahan obat alamiah sebagai sumber daya alam yang telah digunakan secara turun temurun memiliki peluang untuk dikembangkan nilai guna,ekonomi dan ekologinya.

Gagasan untuk memberdayakan sistem pengobatan tradisional bisa dimulai dari beberapa sisi salah satunya adalah *legalistic formal* yaitu dengan memberikan perlindungan terhadap pengetahuan dan hasil-hasil karya masyarakat adat dan berupaya melakukan penguatan dan pemulihan posisi para pengobat tradisional disertai dengan upaya mensinergikan sistem pengobatan modern.

Menurut kades Pakuli, As'ad Abd Karim mengharapkan program itu dapat mengetahui keampuhan obat tradisional setelah diteliti dan mampu meningkatkan taraf hidup para sando serta pembagunan di desa Pakuli. ***(dicky/tahta/indra)***

APPENDIX VII

Change Analysis- Forest Loss between 1983-1999-2001

Monitoring Sumber Daya Alam Taman Nasional Lore Lindu

Desa RAHMAT

Oleh

Bahar Umar , Program Monitoring

The Nature Conservancy

Monitoring
Sumber Daya Alam Desa Rahmat
di sekitar Taman Nasional Lore Lindu

I. Tujuan

- Memonitoring tingkat kerusakan Sumber Daya Alam di sekitar Desa yang berbatasan dengan Taman Nasional Lore Lindu.
- Memonitoring Kualitas hutan yang ada disekitar desa-desa yang berbatasan dengan taman Nasional Lore Lindu
- Menyusun informasi hasil monitoring ke dalam suatu system database

Latar Belakang

Desa Rahmat merupakan salah satu desa dari sekitar 60 desa yang berbatasan dengan Taman Nasional Lore Lindu yang mengalami berbagai gangguan. Informasi mengenai hal-hal yang terjadi seperti luas daerah perambahan, habitat-habitat yang dirambah, dimana terjadinya, informasi tentang hal tersebut sangat sedikit dan terbatas lewat informasi dari mulut ke mulut tanpa didasari bukti dan fakta yang otentik. Kondisi inilah yang sangat memprihatinkan sehingga disadari bahwa betapa pentingnya dilakukan survey dan pendataan tentang hal-hal tersebut sekurang-kurangnya di desa-desa yang terletak sepanjang daerah perbatasan, yang dapat dilakukan oleh berbagai pihak yang peduli dengan keadaan Taman Nasional Lore Lindu.

Untuk mendapatkan informasi-informasi seperti tersebut secara sederhana dapat dilakukan dengan membuat beberapa transek yang dapat memberikan informasi tentang letak transek, struktur hutan, bekas penebangan (logging), potensi rotan dan bekas-bekas pengambilan rotan, serta berbagai indikator mutu hutan lainnya.

Pengolahan hasil monitoring dapat dilakukan langsung di lapangan, dan hasilnya ditunjukkan pada anggota masyarakat desa dengan harapan akan memberikan nilai tambah pada peningkatan efektivitas monitoring serta hasil-hasil tersebut akan dipadukan dengan hasil monitoring atau berbagai informasi lain yang akan membantu di dalam pengambilan keputusan dalam pengelolaan Taman Nasional Lore Lindu. Untuk itu diperlukan penyusunan data dalam bentuk data base agar dapat diolah kedalam sistem GIS untuk peningkatan efektifitas program monitoring setiap lokasi.

Monitoring Kualitas Hutan di desa Rahmat.

Pelaksanaan Monitoring kualitas hutan di sekitar Taman Nasional Lore Lindu di dasarkan oleh reference pelaksanaan monitoring sebelumnya yang telah di lakukan Cam Webb dengan teamnya.

Pola ini dikembangkan secara lebih detail dengan informasi yang lebih lengkap dengan tujuan untuk membangun suatu system database konservasi yang dapat digunakan oleh berbagai pihak dalam pengembangan pengelolaan Taman Nasional Lore Lindu.

Untuk mencapai maksud tersebut salah satu langkah adalah dapat menggambarkan penyebaran-penyebaran dari jenis-jenis pohon atau tanaman lain agar semua pihak dapat melihat gambaran yang lebih jelas tentang intraksi dari jenis-jenis pohon atau tanaman lain yang ada di dalam suatu areal hutan yang telah diukur. Untuk mendapatkan hasil tersebut beberapa tambahan data fisik dan posisi pohon atau tanaman merupakan hal mutlak dilakukan.

- **Pelaksanaan Monitoring**

Pelaksanaan monitoring di desa Rahmat oleh team yang terdiri dari 10 orang (Jagawana, Masyarakat dan Asisten lapangan). Jumlah team sedikit lebih banyak di desa ini dibandingkan dengan desa-desa lain mengingat areal yang harus di ukur di desa ini lebih luas sehingga perlu membentuk dua team pengukuran yaitu team pengukuran perambahan dan team pengukuran transek.

- **Pengukuran Perambahan**

Tugas yang dilakukan oleh team pengukur perambahan adalah menggambarkan pembukaan areal TNLL yang ada di sekitar desa. Dengan memanfaatkan GPS mengukur titik-titik batas perambahan dengan hutan yang belum terbuka. Untuk menyatukan format dengan bantuan program ArcViuw areal ini dapat dipetakan.

- **Pengukuran Transek**

Tugas team pengukuran transek di lakukan dengan beberapa pembagian tugas-tugas sesuai dengan fungsi dari anggota team yang melaksanakan kegiatan ini. Tugas yang dilaksanakan meliputi Pembuatan plot, pengukuran keadaan pohon, type hutan, jenis pohon serta penggambaran posisi dari pohon atau tanaman yang ada di dalam transek.

✓ **Pembuatan plot**

Pembuatan plot di lakukan di dasarkan oleh hasil survey awal, dengan memperhatikan variasi dari keadaan fisik dan pola penggunaan lahan oleh masyarakat yang ada di desa. Variasi dari faktor-faktor tersebut yang menjadi dasar jumlah Transek yang akan di ukur untuk mewakili keadaan desa tersebut.

Informasi yang dapat dikumpulkan di desa adalah pengamatan di lapangan seperti : Waktu pelaksanaan, Besar Kanopi, Arah Plot, Kelas lereng, Klasifikasi penggunaan lahan, Jenis-jenis pohon atau tanaman, Jalan setapak, sungai dan anak sungai di setiap hektar dari transek yang dibuat

Informasi lain yang perlu diperhatikan adalah Lebar transek 100 meter dengan pembagian 50 meter di bagian kiri tali dan 50 meter bi bagian kanan tali pengukur, sedang panjang transek di sesuaikan dengan sejauh mana areal Taman Nasional telah di buka atau dimanfaatkan masyarakat dengan jalan merubah fungsi dari areal tersebut yang di lanjutkan dengan pengukuran beberapa hektar sebagai kontrol dari hutan yang ada disekitar areal ini.

✓ Pengukuran Kanopi

Pengukuran penutupan tajuk atau kanopi di lakukan dengan presentase (%) luas penutupan tajuk pohon yang ada di setiap luasan hektar di dalam transek. Luas penutupan tajuk yang dimaksud adalah tajuk-tajuk pohon bukan tanaman lain penutupan tanah tetapi dari tajuk pohon yang membentuk strata hutan sebagai salah satu bagian hutan yang utama untuk menghindari pukulan langsung air hujan terhadap permukaan tanah.

✓ Pengukuran diameter, tinggi pohon, tinggi bebas cabang atau tanaman lain yang ada di dalam lokasi plot.

- Untuk mendapatkan informasi tentang keadaan fisik dari pohon di lakukan pengumpulan informasi seperti :

- Nama Pohon. Pencatatan nama pohon diperlukan untuk mengetahui keberadaan dari suatu jenis pohon di suatu lokasi untuk didiskusikan bersama masyarakat, oleh sebab itu pemberian nama lokal merupakan salah satu alternatif yang memudahkan pemahaman informasi bersama masyarakat.

- Pengukuran diameter tanaman berkayu yang berdiameter lebih besar dari 20 Cm akan di kalsifikasi untuk membedakan Pohon, Batang dan Tiang. Informasi ini diperlukan untuk menhitung basal areal dari lokasi tersebut yang akan di jadikan

dasar dari beberapa informasi lain seperti tingkat gangguan atau klasifikasi strata hutan yang ada di areal ini.

- Pengukuran Tinggi Pohon di lakukan untuk mengetahui tingkat strata dari pohon-pohon yang ada di dalam areal yang di ukur, sebagai salah satu indikasi tentang keadaan tingkat gangguan yang telah terjadi di areal tersebut.

- Pengukuran Tinggi Bebas Cabang di perlukan untuk mengetahui volume masing-masing pohon untuk mendapatkan gambaran tingkat kemampuan menghasilkan kayu yang dapat dimanfaatkan oleh masyarakat.

⊙ Type hutan dan penggunaan lain

Pengukuran type hutan dan penggunaan lain di lakukan dengan mengumpulkan beberapa informasi yang dapat mendukung pengukuran type hutan atau penggunaan lain dengan melakukan pengamatan setiap hektar dari transek yang diukur dan mengelompokkan ke dalam beberapa jenis type yang di sesuaikan dengan keadaan Taman Nasional Lore Lindu seperti :

Type Hutan :

P	-	Hutan primer.
R	-	Hutan primer dengan pengambilan rotan
B	-	Hutan dengan pembersihan bawah
T	-	Hutan dengan tanaman perkebunan di bawah
L	-	Hutan primer dengan sedikit bukti penebangan
G	-	Hutan bekas penebangan untuk pengambilan kayu
S	-	Areal bekas ladang/kebun yang hutannya tumbuh kembali
		S1 1 - 2 tahun
		S2 3 - 19 tahun
		S3 > 20 tahun
H	-	Areal baru ditebang habis
K	-	Kebun (kopi,coklat,...)
D	-	Ladang (Jagung, Padi ...)
A	-	Alang-alang

Tanaman Ladang :

W	-	Sawah
J	-	Jagung
P	-	Padi
S	-	Sayur-sayuran
U	-	Ubi

- Jenis pohon atau tanaman

  Pengambilan informasi tentang jenis-jenis pohon atau tanaman yang ada di dalam areal transek sangat di perlukan sebagai indikator type hutan, terutama dari jenis pohon pioner.

- Penggambaran letak pohon (X,Y)

  Pengambilan informasi tentang posisi dari jenis pohon diperlukan antara lain untuk melihat penyebaran dan jumlah dari setiap pohon. Informasi ini merupakan salah satu dasar penyusunan system database yang diperlukan dalam pengelolaan Taman Nasional Lore Lindu.

- Pengolahan Data

Pengolahan data dilakukan oleh pelaksana berdasarkan informasi lapangan yang digabungkan dengan beberapa informasi tambahan sesuai dengan letak dan keadaan fisik lokasi kegiatan.

Informasi ini diperlukan untuk menghitung Basal Area dan Tingkat kerusakan yang telah terjadi di daerah ini. Tingkat gangguan hutan yang dimaksud terbagi atas 4 kelas dengan kelas 4 merupakan kelas tertinggi dari kelas gangguan hutan yang terjadi di daerah ini.

Pembagian ini berdasarkan :

Kelas 1 Adalah hutan primer yang tidak terganggu.

2 Adalah hutan primer dengan pengambilan rotan atau hutan primer dengan sedikit bukti penebangan atau Areal bekas ladang/kebun yang hutannya telah tumbuh kembali diatas 20 Tahun.

3 Areal bekas ladang/kebun yang hutannya telah tumbuh kembali antara 3 – 19 tahun atau hutan dengan pembersihan bawah atau Hutan dengan tanaman perkebunan di bawah atau hutan primer dengan sedikit bukti penebangan untuk pengambilan kayu.

4 Areal hutan yang telah benar-benar telah mengalami :
- Areal bekas ladang/kebun yang hutannya tumbuh kembali yang berumur 1 - 2 tahun
- Areal baru ditebang habis
- Telah berubah fungsi menjadi Kebun Ladang, Alang-alang dan Sawah

HASIL PEMBAHASAN

▪ Hasil

Hasil pengamatan lapangan yang di dasarkan dengan pola pemanfaatan SDA di desa ini menghasilkan tiga transek yaitu :

1 Pertigaan Lindu. Pola pemanfaatan lahan yang akan di jadikan perkebunan dengan menyisakan pohon-pohon dari hutan alam untuk di jadikan naungan dari tanaman kopi dan coklat mereka.

2 Nopu.' Pola pemanfaatan lahan yang ada di daerah ini adalah pola pembersihan total dengan melakukan clear cutting dengan tidak menyisakan sama sekali pohon-pohon yang ada di dalam areal yang baru di buka. Dengan melakukan pembakaran dari sisa-sisa pohon yang telah ditebang lebih dahulu. Pola ini biasanya di dahului dengan penanaman tanaman semusim seperti jagung, lombok atau tanaman semusim lainnya di antara tanaman perkebunan utama mereka (Kopi dan Coklat)

3 Rawa Pola pemanfaatan lahan di daerah in adalah perubahan fungsi areal menjadi perkebunan dengan menyisakan sedikit dari pohon-pohon dari hutan alam yang akan dijadikan sebagai tanaman naungan dari kopi dan coklat mereka

▪ Memonitoring tingkat kerusakan Sumber Daya Alam di sekitar Desa

Kerusakan hutan yang terjadi disekitar desa Rahmat secara telah mencapai 1 Km dari batas Taman Nasional Lore Lindu, dengan merubah struktur hutan menjadi perkebunan coklat dan kopi oleh masyarakat yang ada di desa ini.

Pola pengelolaan areal TNLL di desa Rahmat terdiri dari :

1. Pola perambahan sebelum tahun 1998 seluas 82 Ha pengelolaan dilakukan dengan pola penanaman Kopi di antara pohon dengan melakukan pembersihan di bagian bawah dari tegakan hutan.

2. Pola perambahan setelah tahun 1998 mencapai 285 Ha atau meningkat sekitar 350 % dari perambahan sebelumnya penanaman Coklat di antara pohon sekaligus merubah kopi menjadi coklat dengan pembersihan bagian bawah dan

pembersihan batang dan pancang yang ada di dalam areal pengolahan masyarakat.

3. Pola lain dari perambahan setelah 1998 adalah dengan melakukan pembersihan dengan penebangan dan pembakaran yang di lanjutkan dengan penanaman Coklat dan Kopi yang di antaranya di tanami tanaman semusim seperti Jagung, Lombok dll.

Dari ketiga pola yang ada di desa ini pola pembersihan dengan penebangan dan pembakaran yang sangat merusak struktur dan fungsi hutan. Dari pemantauan umum perubahan SDA yang ada di sekitar desa ini cenderung mengarah ke pola ini. Beberapa masyarakat juga telah membangun rumah-rumah tempat tinggal di dalam areal Taman Nasional Lore Lindu. Rumah-rumah yang telah di bangun sedikitnya 5 rumah yang ada di sekitar Jalan Jepang dan 32 rumah di batas desa Rahmat dan Sintuwu yaitu jalan arah menuju Lindu sekitar 3 Km dari batas kedalam areal TNLL.

Dari pemantauan kami di lapangan selama pelaksanaan kegiatan ini sedikitnya 7 sampai 8 pohon yang rebah setiap hari disekitar lokasi transek, dan sedikitnya satu kali sehari pengangkutan kayu ke luar dari desa ini.

- **Memonitoring Kualitas hutan yang ada disekitar desa-desa Rahmat.**

Hasil monitoring yang di lakukan di desa Rahmat secara umum menunjukkan penurunan kualitas hutan yang sangat drastis yang hampir merata di desa ini sejauh sekitar 1000 meter dari batas Taman Nasional Lore Lindu. Dibeberapa tempat di dalam desa ini penurunan kualitas hutan bervariasi sesuai dengan pola pemanfaatan lahan yang di lakukan oleh masyarakat di desa ini.

Dari ketiga lokasi transek yang diukur terlihat bahwa kualitas hutan yang terendah di daerah sekitar Dusun Nopu. Areal hutan sekitar 1000 meter dari batas TNLL telah dirubah menjadi kebun dan ladang yang di tanami Kopi, Coklat dan beberapa tanaman semusim. Hasil pengukuran transek dilokasi ini sejauh sekitar 800 meter hanya memiliki sekitar 1 pohon yang berdiameter di atas 50 Cm, demikian pula kedaan yang ada disekitar transek terdapat beberapa pohon yang tersebar tidak merata dengan jarak lebih dari 300 meter.

Lokasi yang mengalami penurunan kualitas hutan kedua adalah daerah yang ada di sekitar Rawa. Areal hutan sekitar 1000 meter dari batas TNLL walaupun telah dirubah menjadi kebun dan ladang yang di tanami Kopi, Coklat dan beberapa tanaman semusim. Hasil pengukuran transek dilokasi ini sejauh sekitar 1000

meter masih memiliki sekitar 13 pohon yang berdiameter di atas 50 Cm dan beberapa pohon yang berdiameter antara 20 – 50 Cm

Dari ketiga lokasi transek yang diukur terlihat bahwa kualitas hutan yang terbaik berada di sektar daerah pertigaan Lindu. Areal hutan sekitar 1000 meter dari batas TNLL walaupun telah dirubah hanya sebatas kebun yang di tanami Kopi, Coklat Hasil pengukuran transek dilokasi ini sejauh sekitar 1000 meter masih memiliki 20 pohon yang berdiameter di atas 50 Cm dan beberapa pohon yang berdiameter antara 20 – 50 Cm.

- **Menyusun informasi hasil monitoring ke dalam suatu system database**

  Hasil pengukuran pohon yang ada di dalam transek yang terpilih telah di susun kedalam suatu system database di dalam Computer sehingga memungkinkan untuk dilihat dan di kelola informasi tersebut dengan cepat sesuai dengan kebutuhan. Hal ini memungkinkan karena dalam pengukuran transek yang di lakukan setiap jenis pohon memiliki informasi tentang posisi, diameter, tinggi dan tinggi bebas cabang.

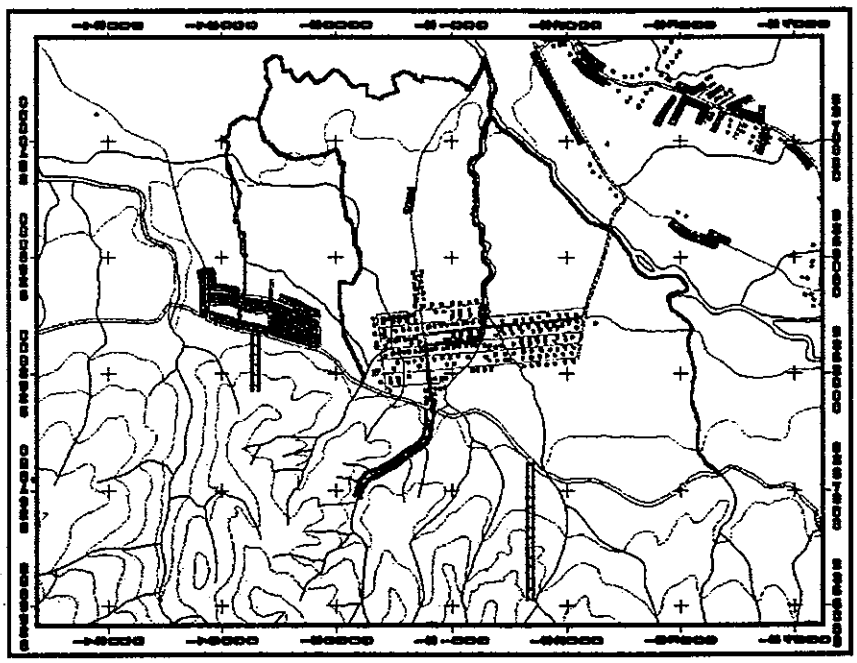
  Dengan informasi ini kita dapat menghitung beberapa kemungkinan-kemungkinan seperti penyebaran setiap jenis pohon dll.

- **Pembahasan.**

Hasil pembahasan monitoring yang di lakukan di desa Rahmat, secara umum menunjukkan kualitas hutan yag ada disekitar desa ini sangat rendah. Hal ini dapat di lihat dengan banyaknya tanaman Exotic yang telah di tanam oleh masyarakat berupa kopi dan coklat di samping beberapa jenis pohon yang di manfaatkan untuk naungan dari tanaman kopi dan coklat seperti Dadap (Eritrina sp) dan Kemiri. Rendahnya kualitas hutan yang ada di desa ini semakin bertambah sejalan dengan meningkatnya jumlah rumah yang telah di bangun di dalam areal Taman Nasional Lore lindu.

Dari indikasi yang terjadi di desa ini menunjukkan bahwa menurunnya kualitas hutan sangat jelas disebabkan oleh meningkatnya aktifitas manusia yang saat ini terus bertambah dengan perpindahan penduduk yang masuk ke desa ini. Situasi ini semangkin meningkat dengan cepat karena lemahnya penegakan hukum bagi masyarakat yang merusak SDA di daerah ini. Hal ini terlihat penebangan terus berlangsung dan pengangkutan kayu keluar dari desa ini terus berlangsung tampa halangan sama sekali.

PETA
Lokasi Transek Monitoring Ekologi
Desa Kamarora A, B dan Kadidia

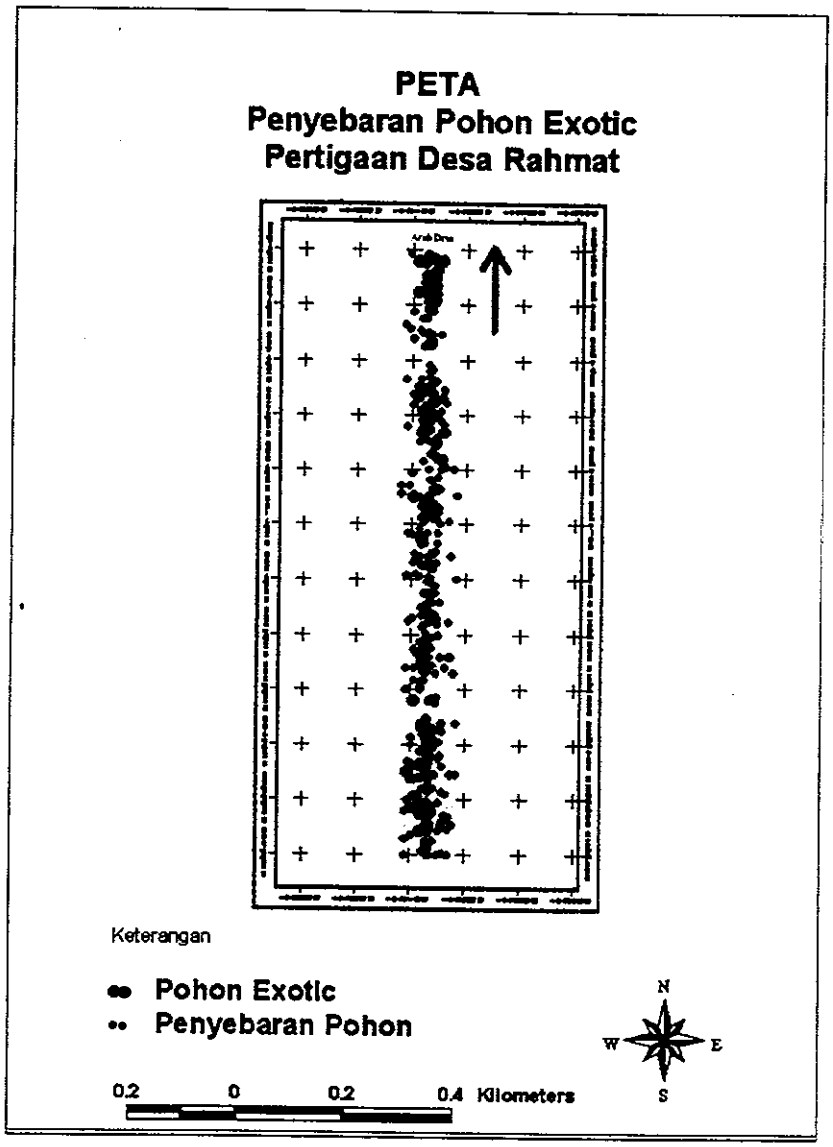


2 0 2 4 Kilometers

Keterangan
Transek Kamarora B
Transek kadidia.
Transek kamarora a.

Pemukiman
Jalan
Sungai
Contour
Batas Desa

N
W E
S


PETA
Penyebaran Pohon Exotic
Pertigaan Desa Rahmat
Keterangan
Pohon Exotic
Penyebaran Pohon
N
W
E
S
0.2
0
0.2
0.4 Kilometers

LEMBAR DATA - RAHMAT PERTIGAAN

	A	B	C	D	E	F	G	H	I	J	K		L	M	N	O	P	Q	S	T	U	V
Tanggal:						PETA K											DATA PERJALANAN					
					Indikator (Y/T)									Medan					Jumlah			
Posisi	Jam	Type	Basal area	kanopi	kopi 1m+	koklat 1m+	me-apo	bam-bu	rum-put	bak-ar	Jenis ladang	Jarak	Arah	Kemir-lingan	ikut pungg.	Type-type	pohon 50+	batang 20-50	rotan siap p.	rotan diambil	jal. se-tapak	sungai
1 0	9:30	K	0.4	15%	Y	Y	Y	T	Y	T	K	0–100	180	0-15	L	K,H,S2	0	24	0	0	Y	T
2 100	13:30	K	0.5	10%	Y	Y	Y	T	Y	T	K	100–200	180	0-15	L	K,H,S2	0	28	0	0	Y	T
3 200	15:30	K	0.5	25%	Y	Y	Y	T	Y	T	K	200–300	180	25-45	L	K,H,S2	0	15	0	0	Y	T
4 300	16:30	K	0.6	25%	Y	Y	Y	T	Y	T	K	300–400	180	25-45	L	K,H,S2	0	21	0	0	Y	T
5 400	9:30	K	0.5	10%	Y	Y	Y	T	Y	T	K	400–500	180	25-45	L	K,H,S2	0	20	0	0	Y	T
6 500	13:30	K	0.6	10%	Y	Y	Y	T	Y	T	K	500–600	180	25-45	L	K,H,S1	0	17	0	0	T	T
7 600	16:30	K	2	50%	Y	Y	Y	T	Y	T	K	600–700	180	45-65	P	K,H,S1	0	24	0	1	T	T
8 700	9:30	K	3.4	50%	Y	Y	Y	T	Y	T	K	700–800	180	45-65	P	K,H,S1	1	40	0	0	T	T
9 800	13:30	K	4.9	75%	Y	Y	Y	T	Y	T	K	800–900	180	45-65	P	K,H,S1	4	29	0	0	T	T
10 900	16:30	B	7.9	75%	Y	T	Y	T	T	T	0	900–1000	180	45-65	P	K,H,S1	14	29	0	9	T	T
11 1,000	11:30	R	7.9	95%	T	T	T	T	T	T	0	1000–1100	180	70	L	R	17	33	0	12	Y	T
12 1,100												1100–1200										
13 1,200												1200–1300										
14 1,300												1300–1400										
15 1,400												1400–1500										
16 1,500												1500–1600										
17 1,600												1600–1700										
18 1,700												1700–1800										
19 1,800												1800–1900										
20 1,900												1900–2000										

Data Pelaksanaan dan Pola Pemanfaatan Areal TNLL

Tanggal:	6 s/d 9 Pebruari 2001
Lokasi:	Rahmat Pertigaan
GPS:	178907 dan 9868680
Ketinggian (awal):	600
Ketinggian (ahkir)	850
Penulis:	Farid
Pengarah:	Bahar Umar
Tim lain: 1	Wahyuddin
2	Nonce
3	Ambalea
4	Tinus
5	Valentinus

Type hutan:
- P - hutan primer
- R - hutan primer dgn. pengambilan rotan
- B - hutan dgn. pembersihan pohon bawah
- T - hutan dgn. tanaman perkebunan di bawah
- L - hutan primer, ada bukti sedikit penebangan
- G - hutan bekas penebangan untuk pengambilan kayu
- S - areal bekas ladang/kebun, yg. hutanya tumbuh kembali
- H - areal baru ditebangan habis — S1 - 1-2 thn.
- K - kebun (kopi, coklat ...) — S2 - 3-19 thn.
- D - ladang (jagung, padi ...) — S3 - 20+ thn.
- A - alang-alang
- W - sawah

Tanaman ladang:
- J - jagung
- P -padi
- S - sayur-sayuran
- U - ubi

Data Pelaksanaan dan Pola Pemanfaatan Areal TNLL

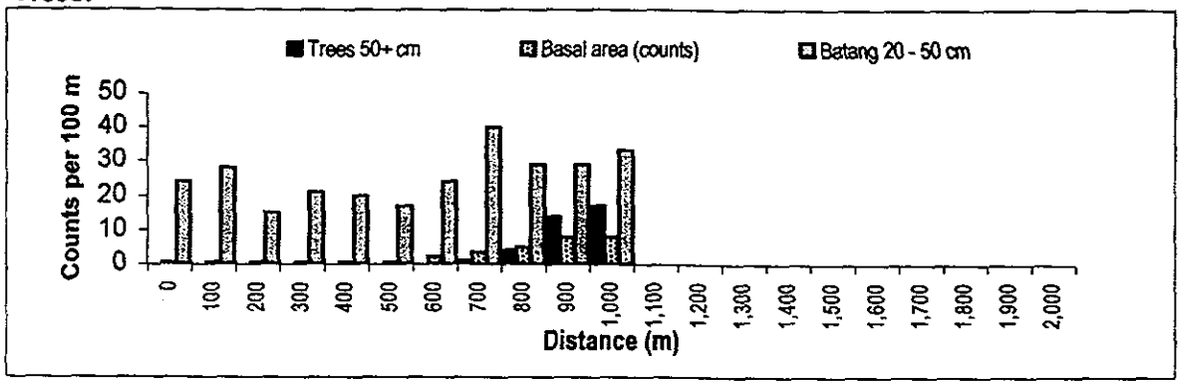
Tanggal:	6 s/d 9 Pebruari 2001	Type hutan:	P - hutan primer	
Lokasi:	Rahmat Pertigaan		R - hutan primer dgn. pengambilan rotan	
GPS:	178907 dan 9868680		B - hutan dgn. pembersihan pohon bawah	
Ketinggian (awal):	600		T - hutan dgn. tanaman perkebunan di bawah	
Ketinggian (ahkir)	850		L - hutan primer, ada bukti sedikit penebangan	
			G - hutan bekas penebangan untuk pengambilan kayu	
Penulis:	Farid		S - areal bekas ladang/kebun, yg. hutanya tumbuh kembali	
Pengarah:	Bahar Umar		H - areal baru ditebangan habis	S1 - 1-2 thn.
Tim lain: 1	Wahyuddin		K - kebun (kopi, coklat ...)	S2 - 3-19 thn.
2	Nonce		D - ladang (jagung, padi ...)	S3 - 20+ thn.
3	Ambalea		A - alang-alang	
4	Tinus		W - sawah	
5	Valentinus	Tanaman ladang:		
			J - jagung	
			P -padi	
			S - sayur-sayuran	
			U - ubi	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U	V
	Tanggal:		PETAK									DATA PERJALANAN									
					Indikator (Y/T)									Medan		Jumlah					
	Posisi	Jam	Type	Basal area	kanopi	kopi 1m+	koklat 1m+	me-apo	bam-bu	rum-put	bak-ar	Jenis ladang	Jarak	Arah	Kemir-ingan	ikut pungg.	Type-type	pohon 50+	batang 20-50	rotan siap p.	rotan diambil	jal. se-tapak	sungai
1	0	9:30	K	0.4	15%	Y	Y	Y	T	Y	T	K	0–100	180	0-15	L	K,H,S2	0	24	0	0	Y	T
2	100	13:30	K	0.5	10%	Y	Y	Y	T	Y	T	K	100–200	180	0-15	L	K,H,S2	0	28	0	0	Y	T
3	200	15:30	K	0.5	25%	Y	Y	Y	T	Y	T	K	200–300	180	25-45	L	K,H,S2	0	15	0	0	Y	T
4	300	16:30	K	0.6	25%	Y	Y	Y	T	Y	T	K	300–400	180	25-45	L	K,H,S2	0	21	0	0	Y	T
5	400	9:30	K	0.5	10%	Y	Y	Y	T	Y	T	K	400–500	180	25-45	L	K,H,S2	0	20	0	0	Y	T
6	500	13:30	K	0.6	10%	Y	Y	Y	T	Y	T	K	500–600	180	25-45	L	K,H,S1	0	17	0	0	T	T
7	600	16:30	K	2	50%	Y	Y	Y	T	Y	T	K	600–700	180	45-65	P	K,H,S1	0	24	0	1	T	T
8	700	9:30	K	3.4	50%	Y	Y	Y	T	Y	T	K	700–800	180	45-65	P	K,H,S1	1	40	0	0	T	T
9	800	13:30	K	4.9	75%	Y	Y	Y	T	Y	T	K	800–900	180	45-65	P	K,H,S1	4	29	0	0	T	T
10	900	16:30	B	7.9	75%	Y	T	Y	T	T	T	0	900–1000	180	45-65	P	K,H,S1	14	29	0	9	T	T
11	1,000	11:30	R	7.9	95%	T	T	T	T	T	T	0	1000–1100	180	70	L	R	17	33	0	12	Y	T
12	1,100												1100–1200										
13	1,200												1200–1300										
14	1,300												1300–1400										
15	1,400												1400–1500										
16	1,500												1500–1600										
17	1,600												1600–1700										
18	1,700												1700–1800										
19	1,800												1800–1900										
20	1,900												1900–2000										
21	2,000												2000–2100										
22	2,100												2100–2200										
23	2,200												2200–2300										
24	2,300												2300–2400										
25	2,400												2400–2500										
26	2,500												2500–2600										
27	2,600												2600–2700										
28	2,700												2700–2800										
29	2,800												2800–2900										
30	2,900												2900–3000										
31	3,000																						

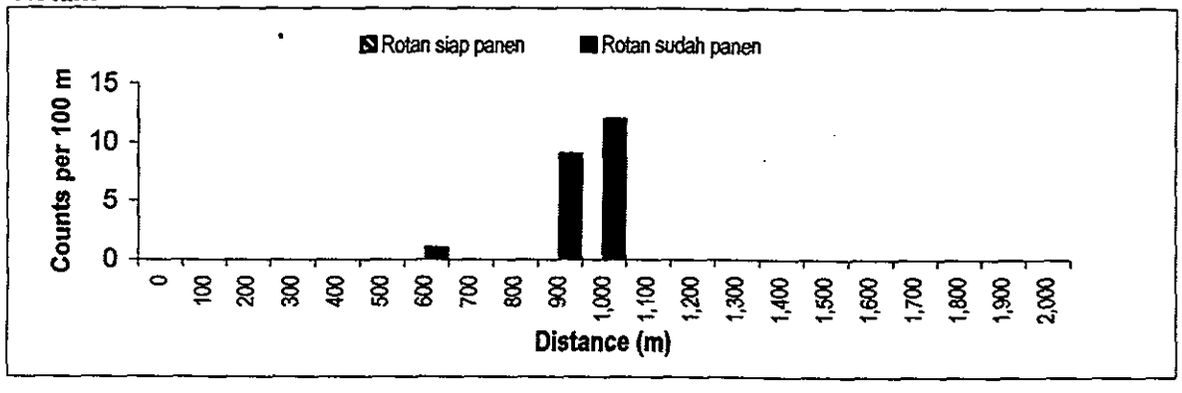
Rahmat Pertigaan

Starting Elevation: 600 m *Direction:* 180 degrees
Long/Lat: 178907 dan 9868680

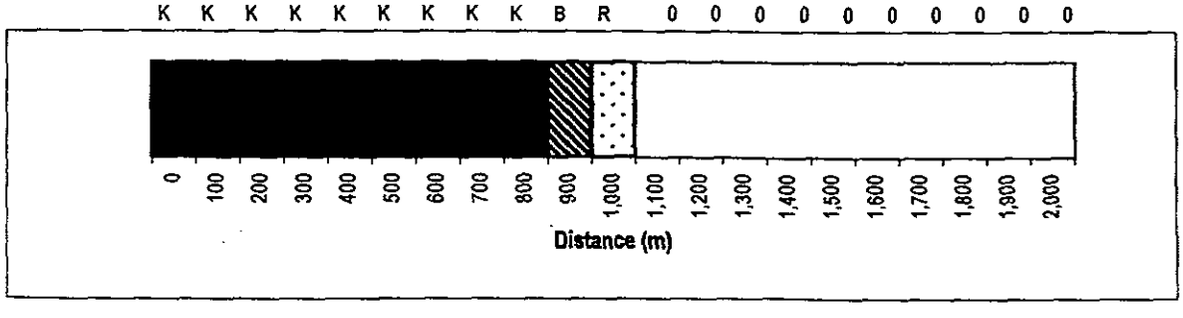
Trees:



Rotan:



Summary:



Slope (degrees)

0	0-15	*800*	45-65	*1,600*	0
100	0-15	*900*	45-65	*1,700*	0
200	25-45	*1,000*	70	*1,800*	0
300	25-45	*1,100*	0	*1,900*	0
400	25-45	*1,200*	0	*2,000*	0
500	25-45	*1,300*	0		
600	45-65	*1,400*	0		
700	45-65	*1,500*	0		

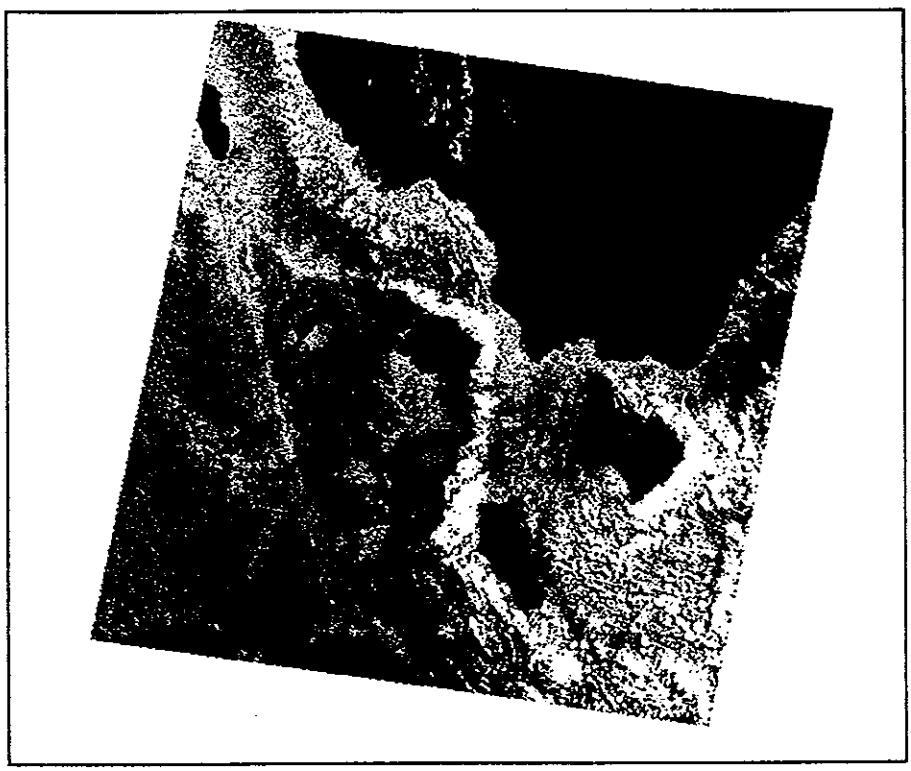
Disturbance class

4
3
2
1

APPENDIX VIII

Transect Monitoring Report – Rahmat (Indonesian)

Change Analysis - the loss of forest cover at Lore Lindu National Park using Satellite Image Interpretation



The Nature Conservancy

JANUARY 2002

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Duncan Neville

Change Analysis - the loss of forest cover at Lore Lindu National Park using Satellite Image Interpretation

Summary

Remote sensing methodology and GIS technology has been used to analyze and interpret Landsat satellite images of Lore Lindu National Park (LLNP), Central Sulawesi. By comparing the forest canopy cover at three different points in time (1983, 1999, 2001), the extent of change in vegetation types can be mapped and evaluated. Between 1983 and 2001, 1,877.83 Ha. of forest (0.86% park) has been opened. Between 1983 and 1999, 1,209,49 Ha. of forest (0.55% park) was opened, and between 1999 and 2001, 668,34 Ha. of forest (0.3% park) was opened. The rate of opening of forest cover has increased 5 times in the past two years. The areas most at risk are Sibalaya-Salua, the boundaries in the Palolo Valley, Dongi-dongi, and Tuare. The determining factors in regard to canopy loss appear to be size of local population and access.

Monitoring of forest cover using remote sensing is a speedy, complete, and relatively cheap technique. Costs to obtain and analyze a Landsat satellite image are around Rp 50,000,000 [US $ 5,000], so monitoring at a minimum two year interval would be cost effective.

Background

Lore Lindu NP is surrounded by villages (around 60) with many rural activities like farming, plantation agriculture, and harvesting of forest products, all of which may involve interactions with the park. These interactions could include land-use for agriculture or plantations, something which is forbidden. These activities can be seen as threats to the main functions of Lore Lindu National Park as a center for high biodiversity, for protecting ecosystems, and as a major water catchment.

The easiest indicator of extent of land clearance is vegetation canopy cover. Observation on changes in vegetation cover can be done exactly using field survey teams, but, remembering the size of LLNP, this is not a simple task, costs are high, and a long time is required. Using remote sensing technology and a Geographic Information System (GIS), change in canopy cover can be measured quickly and at low cost. This method is also useful to confirm results of other investigations, by cross-checking.

Development of remote sensing technology using satellite images is a good method for monitoring change and land clearance at LLNP. Resulting information is simple to present and understand, and change can be usefully measured either from extent (area) of forest cleared or location of clearances, both give results important to managers. The GIS facility now managed by BTNLL (with assistance from TNC and USAID) is a useful aid in monitoring the health of LLNP.

Methods

Landsat images have a pixel size of 30 x 30 m, and images use 7 different bands of long wavelength. Interpretation of images was carried out using Idrisi 3.2 software. The first stage involved creation of a composite image sung:

- Blue band = band3
- Green band = band4
- Red band = band5

Then each composite is viewed in the *Normalized Difference Vegetation Index* (NDVI) format, an index that measures reflectance of electromagnetic waves in the infrared and red band. This can detect changes in the green biomass between one area and another. Each pixel is assigned to a class, where its vegetation is classified as no change, opened, or canopy re-grown. This was performed for each image, and pixel indexes compared for images from different years. The result is an image which shows spots of change in canopy cover; as these spots represent pixels of known size (30 x 30m) the area of change in canopy cover can be measured.

For the purposes of this study, three Landsat images were analyzed: 1983 (6 April), 1999 (November), and 2001 (24 August). Efforts to find images from the early 1990s were not successful.

Results and analysis

Maps showing the extent of change in canopy cover at LLNP from 1983 – 1999, 1999 – August 2001, and 1983 – 2001 are presented in Figures 1, 2, and 3.

Between 1983 and 2001, the extent of canopy opened inside LLNP was estimated to be 1,877.83 Ha.. Thus, the rate of clearance over 18 years was roughly 104.32 Ha. per year. Compared to the total area of LLNP at 217,991.18 hectares, total canopy cover loss amounts to 0.86% of the Park area.

The area of canopy opened between 1983 and 1999 was measured at 1.209,49 Ha., so roughly 75,60 Ha. was opened each year. Compared to the total area of the Park, this amounts to a rate of change of 0.55% over 16 years (or 0.00286 % per month).

Between November 1999 and August 2001, canopy loss measured 668,34 Ha, or roughly 222,78 Ha. each year. This level of change amounts to 0.3% of the total Park area over 19 months (0.0161% per month).

Looking at these figures, we can reach the conclusion that rate of opening of canopy has risen 5.6 times over the past two years, between November 1999 and August 2001. But it must be remembered that social-economic factors have not been constant over the entire period (1983-2000), it is highly likely that an increased rate of change started before 1999, at the beginning of the 1990's when roads and infrastructure were improved.

The results of this analysis, as presented in Figures 1-3, show the extent of forest that has been opened. These maps also indicate areas of high risk – from the area of forest opened these areas can be ranked as follows:

- 1 = Sibalaya - Salua (Sigi Biromaru Sub District).
- 2 = Sintuwu - Rahmat – Kamarora -Tongoa (Palolo Sub District).
- 3 = Dongi-Dongi (Palolo Sub District).
- 4 = Tuare and surroundings (Lore Selatan Sub District).

As areas with highest levels of canopy change, these 4 areas should be receiving special attention from the managers of LLNP.

Loss of canopy cover is not certain to be due to encroachment or agricultural clearing in the Park, there could be a natural cause – like landslide, flooding, etc.. In general, changes that occur in the center of the Park are due to natural causes, whereas those that occur close to settlements are due to human causes. For example, Figure 5 shows a blow-up of the area around Sibalaya.

There is one exception to this, which is the case of Dongi-dongi, where forest clearance is happening well inside the Park boundaries, but along an asphalt road where human access is high (Figure 4).

Before carrying out an analysis, encroachment using plants like cacao and coffee at close spacings can appear similar to closed canopy forest, but this can in fact be detected as normally there is some gap between plantings and ground readings can be obtained.

There is anecdotal evidence that in the Palolo Valley between 1983 – 1999 the rate of land-use change was fairly high (especially at villages Rahmat, Kadidia, Kamarora A, Kamarora B which directly adjoin the Park). Using GIS technology the extent of this can be measured directly.

Starting in May 2001, when the Dongi-dongi case arose, there was a significant change – as of August 2001 63.5 Ha. of forest had been opened. This is clearly show in the area map (Figure 2). It should be noted that his encroachment is still continuing, and the area opened is certainly much larger by now.

The speed of change has clear links to the local population size, and ot rate of population growth. This is not surprising remembering that almost all the rural populace are farmer, who need to work land to provide for their families.

Estimations of population growth, as presented in Table 1, can give a picture of population growth patterns around LLNP. Altogether, since 1980 there has been a 23-29% increase in population size for every ten years that pass. Since the valley was opened in the 1970s, development of the Palolo area has been extremely rapid. Between 1980-1990

populations grew by 63%, and between 1990-2000 by 44%, the highest growth rates around LLNP. Thus, the Palolo Valley is tending to experience problems with land availability, and this can be coupled with local practices in clearing forest, which were confirmed by analysis of satellite images and by ground transects carried out by TNC in 2001. In the Rahmat area, this study found that forest ad been cleared up to 2 km inside the Park boundaries, supporting findings from this satellite image analysis. This fact means that Palolo Sub District should get special attention from LLNP managers.

Compared to the above figures, population growth in the north-west (Sigi Biromaru Sub District) has not been rapid, but the villages alongside the Park are very large, with communities averaging more than 2000 members. The forest here also tends to be dry, and is very susceptible to damage by clearing. In Lore Utara Sub District, the fastest growth has been in the north, where road access is very easy (Watumaeta, Wuasa). In areas that are difficult to reach, for example some villages in Lore Tengah Sub District, or all of Lore Selatan Sub District, population growth rates can be classified as low.

To know more details about areas or locations of forest clearance, GIS maps can be blow-up, as in Figure 4. This is extremely useful in making Park management decisions. For example, in the Katu area there is a traditional settlement inside the Park. A more detailed study would indicate whether secondary forest is regenerating on old farmland, and whether the area of forest cleared and used for farmland is stable or increasing.

The cost of performing a change analysis using GIS is relatively low, quick, and complete compared to other monitoring techniques. The costs include purchase of satellite images (about US$ 3,500), one month's labor for analysis (US $ 5,000), and costs of maintaining the GIS and printing reports (US $ 10,000). So within two months following purchase of the image, clear data on the state of Lore Lindu National Park can be obtained. This can be compared very favorably with field transect monitoring, which requires one and a half years to survey 24 locations at a cost of about US $ 21,600 (rough costing).

Nevertheless, remembering plans to develop a collaborative management system, where participating villages need to see directly the state of surrounding forests, its important that monitoring of LLNP is carried out through a combination of these methods, so that each method can complement the other.

Conclusions and recommendations

1. From 1983 to 2001, around 0.86% of LLNP has been opened for agricultural purposes. Although this means that the largest part of LLNP still has good vegetation cover, rates of forest clearance have increased drastically in the past two years.

2. Opening of forest tends to occur in areas closest to settlements,or where access to the forest is very easy (along boundaries, and along roads crossing the forest, eg. Dongi-dongi).

3. Results of analysis show a broad picture of forest clearance, this picture indicates the level of risk for each locale. Based on the area of forest cleared, areas most at risk can be ranked as follows:

   - 1 = Sibalaya - Pakuli (Biromaru Sub District).
   - 2 = Rahmat - Sintuwu - Rahmat - Tongoa (Palolo Sub District).
   - 3 = Dongi-Dongi (Palolo Sub District).
   - 4 = Tuare and surroundings (Lore Selatan Sub District).

4. Increase in population size is one factor that has the greatest influence in predicting canopy loss; in this regard the analysis of demography that has been completed will greatly assist in identifying locales most at risk from clearance.

5. Especially for Katu, a detailed study should be made to compare positive and negative changes in forest cover for the immediate surrounding area.

6. Analysis using satellite images is an appropriate method for monitoring the health of LLNP and the level of canopy cover. Using the facilities already available at Balai Taman Nasional Lore Lindu, monitoring data can be prepared at relatively low costs and

relatively quickly. This data should be used as a reference in setting policies for Park management programs, to accommodate needs of local communities and conservation requirements of LLNP.

7. Considering costs and time factors, it is recommended that a GIS canopy cover analysis should be carried out every two years at a minimum.

8. Results presented from this analysis give general levels of information; this data is sufficient for LLNP on the broad scale, but for more detailed studies this data should be combined with ground truthing surveys and other forms of information gathering.

Map 1 : Negative Change Map Analysis indicating forest canapy loss from 1983 - 1999
Source : Landsat TM 7 (1999)
Prepared by Lore Lindu National Park Authority from data in Lore Lindu National Park GIS (2001)

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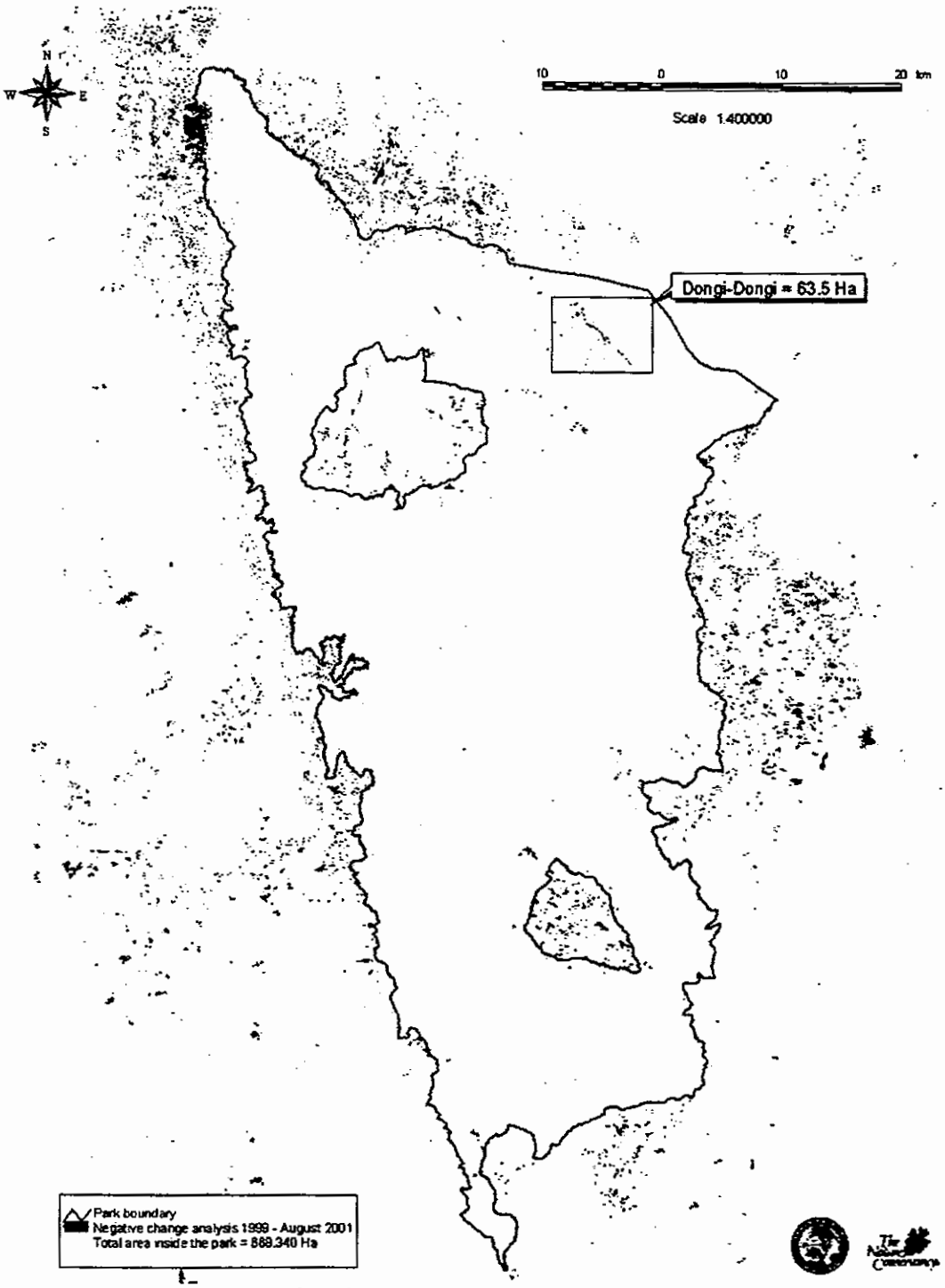

Map 2: Negative Change Map Analysis indicating forest canapy loss from 1999 - August 2001
Source : Landsat TM 7 (2001)
Prepared by Lore Lindu National Park Authority from data in Lore Lindu National Park GIS (2001)

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Map 3: Negative Change Map Analysis indicating forest canapy loss from 1983 - August 2001
Source : Landsat TM 7 (2001)
Prepared by Lore Lindu National Park Authority from data in Lore Lindu National Park GIS (2001)

Tabel 1 : Estimate of Population Growth around Lore Lindu NP

(source : Yayasan Kayuriva/TNC 2001; *Survei Demografi: Pola perubahan populasi dan pengaruhnya terhadap Manajemen TN Lore Lindu*)

Village	*Estimate Population size 1980*	*Estimate Population size 1990*	*% growth 1980-1990*	*Estimate Population size 2000*	*% growth 1990-2000*
Sigi Biromaru					
Sidondo	3947	4559	15.51	4708	3.27
Sibowi	2850	3027	6.21	3397	12.22
Sibalaya Utara	2211	2372	7.28	2499	5.35
Sibalaya Selatan	409	512	25.18	685	33.79
Lambara	1016	1093	7.58	1215	11.16
Kalawara	1302	1569	20.51	1688	7.58
Pandere	1893	2026	7.03	2258	11.45
Pakuli	2113	2802	32.61	3252	16.06
Simoro	513	611	19.10	665	8.84
Omu	997	1085	8.83	1372	26.45
Tuwa	676	963	42.46	1163	20.77
	17927	**20619**	**15.02**	**22902**	**11.07**
Kulawi					
Salua	662(*1984)	710	7.25	949	33.66
Anca	390	505	29.49	654	29.50
Tomado	859	1345	56.58	2021	50.26
Langko	484	635	31.20	739	16.38
Puroo	419	707	68.74	867	22.63
Bolapapu	3527(*1984)	3978	12.79	3094	-22.22
Matauwe	452	494	9.29	523	5.87
Sungku	529	668	26.28	841	25.90
Toro	1387	1598	15.21	2105	31.73
O'o Perese	599	713	19.03	859	20.48
Watukilo	375	451	20.27	644	42.79
Lawua	628	1258	100.32	1571	24.88
Salutome	605	658	8.76	715	8.66
Tompibugis	365	424	16.16	493	16.27
Tomua	307	469	52.77	717	52.88
Gimpu	332	481	44.88	697	44.91
Lempelero	499	638	27.86	817	28.06
Pili Makujawa	90	179	98.89	374	108.94
Moa	298	344	15.44	397	15.41
	12807	**16255**	**26.92**	**19077**	**17.36**

Village	Estimate Population size 1980	Estimate Population size 1990	% growth 1980-1990	Estimate Population size 2000	% growth 1990-2000
Palolo					
Sigimpu	205	287	40.00	782	172.47
Bakubakulu	589	731	24.11	900	23.12
Bobo	558	646	15.77	1050	62.54
Sintuwu	348	796	128.74	1256	57.79
Rahmat	1025	2012	96.29	2892	43.74
Kadidia/Kamarora A + B	2115	3290	55.56	3883	18.02
Tongoa	350	725	107.14	1452	100.28
	5190	**8487**	**63.53**	**12215**	**43.93**
Lore Utara					
Sedoa	358	386	7.82	632	63.73
Watumaeta	231	560	142.42	1371	144.82
Wuasa	1042	1649	58.25	2426	47.12
Kaduaa	216	308	42.59	940	205.19
Dodolo	153	225	47.06	323	43.56
Wanga	118	198	67.80	344	73.74
Siliwanga	(* trans. 1993)	897		677	-24.53
Watutau	456	599	31.36	685	14.36
Betue	162	205	26.54	271	32.20
Katu	199	187	-6.03	279	49.20
	2736	**5027**	**83.74**	**7669**	**52.56**
Lore Tengah					
Rompo	198	243	22.73	399	64.20
Torire	303	287	-5.28	332	15.68
Bariri	292	390	33.56	654	67.69
Doda	602	710	17.94	772	8.73
Hanggira	550	746	35.64	1115	49.46
Lempe	131	177	35.11	283	59.89
	2275	**2740**	**20.44**	**3834**	**39.93**
Lore Selatan					
Lelio	213	272	27.70	331	21.69
Kolori	364	462	26.92	532	15.15
Lengkeka	513	618	20.47	693	12.14
Kageroa	321	304	-5.30	339	11.51
Tomehepi	234	264	12.82	317	20.08
Tuare	442	455	2.94	468	2.86
	2087	**2375**	**13.80**	**2680**	**12.84**
TOTAL (all LLNP)	**43022**	**55503**	**29.01%**	**68377**	**23.20%**

APPENDIX IX

Training and GIS Transfer

Capacitity Building through on-the-job training

Lists of TNC partners directly involved in conservation activities under grant NRM2/USAID at Lore Lindu National Park

The Nature Conservancy (TNC) under the NRM 2/USAID grant 1999-2001 for Lore Lindu National Park, tried to involve many parties in its activities, with the aim of providing capacity building through on-the-job training. All programs routinely involved BTNLL Stafff, local conservation NGOs, and community members in activities, surveys, and training sessions, as listed in the tables below.

Kerjasama dengan LSM Lokal, Mitra Lain

No.	N a m a	Instansi/Lembaga	Jadwal Kegiatan	Jenis Kegiatan	Lokasi Kegiatan	Ketua Tim
1	Idris Tinulelu	Yayasan Jambata	April-November 2000	Bird surveys	Lindu & Kanau Atas	Wahyu
			10-31 March 2001			
2	Daandg Dwi Putra	Sakada Bikidi	10-31 March 2001	Bird surveys	Lindu & Kanau Atas	Wahyu
			21 January to	Bird surveys	Doda, Lempe,Hanggira	
			27 February 2001			
3	Buttu Piton Ma'dika	Yayasan jambata	1-11 April 2001	Bird surveys	Gn. Nokilalaki, Tongoa	Wahyu
4	Muhammad Yasin		19 April to 1 May 2001	Large Mammals	Rore Katimbu,Kamarora, Sintuwu	Edward
			4 May to 4 June 2001	Large Mammals	all LLNP	
5	Andi Faisal Alwi	UGH Indonesia	4 May to 4 June 2001	Large Mammals	all LLNP	
			18 April to 30 June 2001	Large Mammals	Sigi Biromaru,Lore Selatan,	James Burton
					Lore Utara, Palolo, Rorekatimbu	
6	Syaipul	Awam Green	11-14 March 2001	Habitat Survey	Gn. Nokilalaki	Rahmat
7	Amin Panto	Mapala Galara	17 - 27 March 2001	Habitat Survey	Toro,Katu,Peg Bag Selatan	
8	Rahmat Oyong. S.	Awam Green	11-14 March 2001and	Habitat Survey	Toro,Katu,Peg Bag Selatan	
			17 - 27 March 2001			
9	Rusmanto	UGH Indonesia	19-30 April 2001	Large Mammals	Rorekatimbu and Kamarora	James Burton
			26 May to 5 June 2001	Large Mammals	Besoa (Lempe)	
10	Hardianto	Artapala	19-30 April 2001	Large Mammals	Rorekatimbu and Kamarora	James Burton
			26-28 May 2001	Large Mammals	Lempe	
			29 March to 3 April '01	Large Mammals		Ibnu Maryanto
11	Muh. Anas		10 March to April 201	Mammals	Kanawu Atas and sekitarnya	Muh. Yani
12	Muh. Yahya	Mapala Lalimpala	1-11 April 2000	Bird Surveys	Shelter I Nokilalaki	Wahyu
13	Ahyuddin	Mapala Galara		Small Mammals		Muh Yani
14	Jemmi	Y. Pekurehua	26-28 October 2000	Mapping training	Wuasa	CAM Team

Community Members

No.	Name	Village	Dates	Activity	Location	Team Leader
1	Yus Kabi	Wuasa	21- January to 1 February 2001	Bird and Mammal surveys	Bulu Pointoa	Wahyu
2	Leonard	Kamarora	March 200-May 2001	Mammal surveys	All LLNP	Yani
3	Saudi	Doda				
4	Sthefanus	Katu	19-25 June 2001	Large mammals	Katu	J. Burton
5	S. Pantoli	Katu	19-25 June 2001	Large mammals	katu	J. Burton
6	S. Mentara	Hanggira	8-13 June 2001	Large mammals	Hanggira	J. Burton
7	Anthon	Toro				
8	Sumarto.Y.Bande	Lindu	17-22 April 2001	Mapping/GPS	Puroo	Martin/Bambang
9	Bungkara Lago	Lindu	17-22 April 2001	Mapping/GPS	Puroo	Martin/Bambang
10	Agus Tolake	Lindu	17-22 April 2001	Mapping/GPS	Puroo	Martin/Bambang
11	Nurdin Yabu	Lindu	17-22 April 2001	Mapping/GPS	Puroo	Martin/Bambang
12	Abas T Tosuo	Lindu	17-22 April 2001	Mapping/GPS	Puroo	Martin/Bambang
13	Darius Magulili	Lindu	17-22 April 2001	Mapping/GPS	Puroo	Martin/Bambang
14	Tony Andto	Masy. Desa	Jan 2000-Des 2001	Village mapping	12 Villages in Lore Utara	CAM Team
15	Wiilem Tobondo	Masy. Desa	Jan 2000-Des 2001	Village mapping	12 Villages in Lore Utara	CAM Team
16	Yus Kabi	Masy. Desa	Jan 2000-Des 2001	Village mapping	12 Villages in Lore Utara	CAM Team
17	Oktav Tamambali	Desa Sedoa	26-28 October 2000	Mapping training	Wuasa	CAM Team
18	Marten. D	Desa Sedoa	26-28 October 2000	Mapping training	Wuasa	CAM Team
19	Man Togea	Desa Watumaeta	26-28 October 2000	Mapping training	Wuasa	CAM Team
20	Calvinus. T.	Desa Watumaeta	26-28 October 2000	Mapping training	Wuasa	CAM Team
21	Wiilem Tobondo	Desa Wuasa	26-28 October 2000	Mapping training	Wuasa	CAM Team
22	Tony Andto	Desa Wuasa	26-28 October 2000	Mapping training	Wuasa	CAM Team
23	Yandoris	Desa Kaduwa'a	26-28 October 2000	Mapping training	Wuasa	CAM Team
24	Jitro	Desa Kaduwa'a	26-28 October 2000	Mapping training	Wuasa	CAM Team
25	Mito	Desa Wanga	26-28 October 2000	Mapping training	Wuasa	CAM Team
26	Ferdinand L	Desa Wtutau	26-28 October 2000	Mapping training	Wuasa	CAM Team
27	Charry Rembang	Desa Wanga	26-28 October 2000	Mapping training	Wuasa	CAM Team
28	K. Sampali	Desa Wanga	26-28 October 2000	Mapping training	Wuasa	CAM Team
29	Yonathan Tikala	Desa Rompo	26-28 October 2000	Mapping training	Wuasa	CAM Team
30	Liswar Paul Pore	Desa Rompo	26-28 October 2000	Mapping training	Wuasa	CAM Team
31	T. Tagora	Desa Torire	26-28 October 2000	Mapping training	Wuasa	CAM Team
32	Herman Lumeno	Desa Torire	26-28 October 2000	Mapping training	Wuasa	CAM Team
33	Silas Towulu	Desa Betue	26-28 October 2000	Mapping training	Wuasa	CAM Team
34	Rusmin Balitu	Desa Betue	26-28 October 2000	Mapping training	Wuasa	CAM Team
35	Syam Lantawa	Desa Talabosa	26-28 October 2000	Mapping training	Wuasa	CAM Team
36	Evendi Toibo	Desa Talabosa	26-28 October 2000	Mapping training	Wuasa	CAM Team
37	I. Nyoman S.	Desa Siliwanga	26-28 October 2000	Mapping training	Wuasa	CAM Team
38	AF. Rohman	Desa Siliwanga	26-28 October 2000	Mapping training	Wuasa	CAM Team

Stafff from Balai Taman Nasional Lore Lindu and BKSDA

No.	Name	Position	Dates	Activity	Location	Team Leader
1	Nanang Hermawan	Stafff BTNLL	21 May to 2 June 2001	Flora Research	Kulawi,Gimpu,Tongoa, Kalimpaa	Dr. Harry Wiriadinata
2	Caprianto Kallo	Stafff BTNLL	19 - 30 April 2001	Large Mammals	Rorekatimbu and Kamarora	James Burton
			26 June to 5 July 2001	Large Mammals	Lempe	
3	Aris Dwi Yanto	Stafff BTNLL	19 - 30 April 2001	Large Mammals	Rorekatimbu and Kamarora	James Burton
			26-28 May 2001	Large Mammals	Lempe	
4	Donny Heru K	Stafff BTNLL	10-30 March 2001	Large Mammals and Birds	Kanawu	
5	Fatahullah	Stafff BTNLL	10-30 March 2001	Large Mammals and Birds	Kanawu	Muh. Yani
			31 jan-9 feb 2001	Basic GIS	Palu	Martin H
6	Asdi Soiyono	Stafff BTNLL	10-30 March 2001	Large Mammals and	Kanawu	
				Birds		
7	Novel Heins Bone	Stafff BTNLL	10-27 February 2001	Birds Survey	Rano Lite	Wahyu
8	Yonathan Tolaro	Stafff BTNLL	3 - 13 February 2001	Birds Survey	Tokempondo	Wahyu
9	Nanandg. H.	Stafff BTNLL	21- January to February 2001	Birds and Mammals Survey	Bulu Pointoa	Wahyu
			2-8 October	Dasar GIS	Bogor/BIOTROP	Maududi
10	Normal Hutabarat	Stafff BTNLL	21- January to	Surveys Birds	Bulu Pointoa	Wahyu
			1 February 2001	and Mammals		
			1 February 2001	and Mammals		
11	Marselinus Y. Ado	Stafff BTNLL	21- January to	Small Mammals	Doda,Hanggira, Lempe	Muh. Yani
			27 February 2001			
			1 July to 20 September	Birds		Wahyu
			5-19 June 2001	GPS	Palu, Omu	Bambang
			1 March to	Surveys Flora	Bora, Doda	Chuch Cannon
			31 May 2000			
			31 jan – 9 feb 2001	Basic GIS	Palu	Martin H
			2-8 January 2001	GIS	Palu	Martin H
12	Kristian Lono	Stafff BTNLL	10-27 February 2001	Small Mammals	Hanggira	Muh. Yani
13	Darius	Polhut	8-13 June 2001	Large Mammals	Doda	J. Burton
14	Boy	Polhut	19-25 June 2001	Large Mammals	Doda	
15	Dudy Mulyadi	Stafff BTNLL	21 January to 4 February 2000	Birds and Large Mammals	All LLNP	Wahyu, Yani
16	Andi Masri	Stafff BTNLL	21 January to 4 Februari	Birds and Mammals	All LLNP	Wahyu, Yani
			2 – 8 October 2001	Basic GIS	Bogor/BIOTROP	Maudidi
				GPS	Palu	Martin/Bambang
			31 jan – 9 feb 2001	Basic GIS	Palu	Martin/Bambang
				Flora	Doda	Chuck Cannon
17	Doni H. Kristanto	Stafff BTNLL	21 January to 4 Februari	Birds and Large Mammals	Sekitar TNLL	Wahyu, Yani
18	Anwar *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
19	Boby *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
20	Fatahullah *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
21	Haruna *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang

22	Hawarison *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
23	Helmi *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
24	Idris *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
25	Marthen *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
26	Muh. Tiaha *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
27	Zakariah *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
28	Sirajuddin *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
29	Tamrin *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
30	Yustus *	Stafff BTNLL	13-14 April 2000	GPS	Palu	Martin/Bambang
31	Oktovianus*	Staff BKSDA	2-8 October 2001	Basic GIS	Bogor/BIOTROP	Maududi
32	Yusuf Sulo*	Staff BKSDA	2-8 October 2001	Basic GIS	Bogor/BIOTROP	Maududi

* = Received certificate

The Nature Conservancy

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22 Agustus 2000

No : 142/TNC-LLPO/VIII/2000
Lampiran : -
Perihal : **Berita Acara Penyerahan Fasilitas SIG**

Berdasarkan Proyek NRM III Grant No. 497-G-00-99-00004-00), bersama ini kami atas nama The Nature Conservancy Palu Field Office menyerahkan fasilitas Sistem Informasi Geografis kepada Balai Taman Nasional Lore Lindu yang berupa:

No.	Fasilitas	Kondisi	Jumlah
1.	Printer Epson Styhus 1520 + printer cable	Baik, menggunakan driver CD	1 Set
2.	Plotter Encad Novajet IV + 5 M printer cable	Baik menggunakan driver disket	1 Set
3.	Numonics Digitizer + 16 button mouse + serial cable	Baik menggunakan driver disket	1 Set
4.	Compaq Deskpro Computer (Monitor, CPU & Keyboard)	Baik	1 Set
5.	APC UPS	Baik	1 Set
6.	Umax 1220 S Scanner + Installed SCSI Card in the computer	Baik, menggunakan driver CD	1 Set
7.	Rupabumi Map	1:250.000	2 lembar
8.	Rupabumi Map	1:50.000	11 lembar
9.	Geologi Map	1:250.000	2 lembar

Fasilitas ini dilengkapi dengan peta-peta digital berupa peta vegetasi habitat, peta tata guna lahan secara partisipatif dan lain-lain peta yang sedang dalam proses pengerjaan oleh konsultan SIG TNC yaitu Y.Martin Hardiono.

Yang menyerahkan,

Duncan Neville
Lore Lindu Program Manager

Yang menerima,

BALAI TAMAN NASIONAL LORE LINDU

Ir. Laban MM
Kepala Balai TN Lore Lindu

APPENDIX X

Example Community Conservation Agreement (Indonesian)

KESEPAKATAN KONSERVASI MASYARAKAT
DESA WUASA
KEC. LORE UTARA, KAB. POSO

Membangun Pola Pengelolaan Bersama
Taman Nasional Lore Lindu

The Nature Conservancy
2002

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LAMPIRAN 3

PETA DESA DAN WILAYAH KESEPAKATAN

Isi Dokumen:

I. KESEPAKATAN KONSERVASI MASYARAKAT

II. LAMPIRAN 1. SEJARAH DESA

III. LAMPIRAN 2. USULAN RENCANA PENGELOLAAN PARTISIPATIF

IV. LAMPIRAN 3. PETA DESA DAN WILAYAH KESEPAKATAN

KESEPAKATAN KONSERVASI MASYARAKAT
DESA WUASA
KECAMATAN LORE UTARA KABUPATEN POSO

Menimbang:

1. Pada dasarnya kehidupan makhluk di atas bumi tergantung satu sama lain. Kepunahan satu jenis makhluk hidup, akan berpengaruh terhadap keberlanjutan hidup makhluk yang lain. Manusia adalah salah satu dari makhluk hidup dan oleh karena itu merupakan salah satu mata rantai dalam hubungan saling ketergantungan tersebut. Berdasarkan pemikiran itu, maka upaya konservasi untuk mempertahankan keberlanjutan hidup jenis makhluk tertentu, secara tidak langsung merupakan upaya untuk mempertahankan keberlanjutan hidup manusia.

2. Dalam beberapa puluh tahun terakhir, terjadi peningkatan laju kepunahan berbagai jenis makhluk hidup yang belum pernah terjadi pada masa-masa sebelumnya. Hal mana merupakan ancaman serius terhadap keberlanjutan kehidupan di permukaan bumi. Kekuatiran terhadap hal tersebut telah menimbulkan berbagai upaya untuk mempertahankan keanekaragaman hayati dengan cara melindungi habitat jenis-jenis makhluk tertentu yang terancam punah. Antara lain dengan menetapkan kawasan tertentu sebagai Taman Nasional.

3. Pada masa lalu, Pemerintah Republik Indonesia telah menetapkan sejumlah tempat sebagai kawasan konservasi yang kemudian dilanjutkan dengan pemasangan tapal batas kawasan. Di beberapa tempat pemasangan tapal batas tersebut dilakukan secara sepihak, sehingga menimbulkan berbagai masalah dengan penduduk setempat yang haknya diabaikan dalam proses penetapan tersebut. Konflik yang terjadi secara terus menerus antara masyarakat setempat yang menuntut haknya dengan pemerintah yang memepertahankan kawasan konservasi, pada akhirnya bukan hanya merugikan kepentingan penduduk setempat yang haknya dilanggar, akan tetapi juga menjadi penyebab kegagalan program konservasi. Ditetapkannya TAP MPR-RI nomor IX tahun 2001 tentang PEMBARUAN AGRARIA DAN PENGELOLAAN SUMBER DAYA ALAM, antara lain disebabkan oleh timbulnya kesadaran mengenai masalah tersebut. Ketentuan-ketentuan yang terdapat dalam TAP MPR-RI tersebut, hendaknya menjadi acuan utama dalam melakukan penataan kembali sistem penguasaan, pengelolaan dan pemanfaatan sumber daya alam serta untuk menyelesaikan berbagai konflik.

4. Sebagian dari kawasan TNLL merupakan wilayah adat/ ulayat/ ruang hidup dari masyarakat tertentu yang telah tinggal di tempat itu secara turun-temurun, jauh sebelum adanya TNLL, sehingga keberadaannya harus dihormati. Pada sisi lain, kepentingan konservasi keanekaragaman hayati di kawasan TNLL merupakan hal yang sama sekali tidak bisa diabaikan, karena bersangkut-paut dengan keberlanjutan kehidupan secara keseluruhan. Oleh sebab itu, penguasaan dan pengelolaan sumber daya alam di dalam kawasan tersebut hendaklah dilakukan sedemikian rupa sehingga menjamin keberlanjutan ekosistem/ keanekaragaman hayati di kawasan itu dengan

tidak mengabaikan hak-hak yang melekat pada masyarakat yang hidup didalam dan disekitarnya.

5. Untuk mencapai keseimbangan kepentingan sebagaimana diuraikan pada angka (3) dibutuhkan kesepakatan mengenai penguasaan dan pengelolaan sumber daya alam dalam bentuk kesepakatan konservasi yang dapat diterima oleh pihak-pihak terkait. Kesepakatan tersebut hendaklah bersifat terbuka untuk dievaluasi oleh masyarakat bersama pihak-pihak terkait, agar kekurangan-kekurangannya dapat diperbaiki guna mencapai tujuannya.

Mengingat:

1. Pasal 18 B ayat (2), Pasal 28 I ayat (3) dan Pasal 33 Undang-Undang Dasar Tahun 1945;
2. TAP MPR-RI Nomor IX Tahun 2001 tentang Pembaruan Agraria dan Pegelolaan Sumber Daya Alam;
3. TAP MPR-RI Nomor XVII Tahun 1998 tentang Hak Asasi Manusia;
4. TAP MPR-RI Nomor XVI Tahun 1998 tentang Politik Ekonomi Dalam Rangka Demokrasi Ekonomi;
5. TAP MPR-RI Nomor IV Tahun 1999 tentang GBHN;
6. TAP MPR-RI Nomor III Tahun 2000 tentang Sumber Hukum dan Tata Perundang-undangan;
7. Undang-undang Nomor 5 Tahun 1960 tentang Peraturan Dasar Pokok-pokok Agraria;
8. Undang-Undang Nomor 39 Tahun 1999 tentang Hak Asasi Manusia;
9. Undang-undang Nomor 10 Tahun 1992 tentang Perkembangan Kependudukan dan Keluarga Sejahtera;
10. Undang-undang Nomor 22 Tahun 1999 tentang Pemerintahan Daerah;
11. Undang-undang Nomor 25 Tahun 2000 tentang Program Pembangunan Nasional Tahun 2000 – 2004;
12. Undang-undang Nomor 41 Tahun 1999 tentang Kehutanan.

Memperhatikan:

1. Hasil musyawarah dan lokakarya Kesepakatan Konservasi Masyarakat (KKM) di kelima desa (Sedoa, Wuasa, Kaduwaa, Watutau dan Betue).
2. Keputusan Musyawarah Adat Pekurehua – Tawaelia Nomor 5 Tahun 2001 tentang Hukum Adat dan Sistem Pengelolaan Sumber Daya Alam yang Berkelanjutan.

Masyarakat Adat Pekurehua di Desa WUASA dengan ini membuat Kesepakatan Konservasi Masyarakat, sebagai berikut:

BAB I
KETENTUAN UMUM
Pasal 1

Dalam KKM ini yang dimaksud dengan:

a. Kesepakatan Konservasi Masyarakat (KKM) adalah suatu kesepakatan masyarakat tentang pengelolaan sumberdaya alam (SDA) Taman Nasional yang diakui oleh Balai Taman Nasional;

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b. Desa adalah Desa WUASA;

c. Lembaga Adat adalah Lembaga Adat Desa WUASA;

d. Zonasi adalah penataan wilayah Taman Nasional untuk pengelolaan/pelestarian berdasarkan kepentingan ekologi dan sosial;

e. Taman Nasional adalah Taman Nasional Lore Lindu (TNLL) yang berada di Sulawesi Tengah yang ditetapkan berdasarkan keputusan Menteri Kehutanan dan Perkebunan nomor 464/Kpts-II/1999 dengan luas 217.991.18 ha;

f. Balai Taman Nasional (BTNLL) adalah lembaga pemerintah yang menjadi pemangku/pengelola TNLL, berdasarkan SK Menhut Nomor 185/KPTS-II/1997;

g. LKD adalah lembaga yang mewakili masyarakat dalam usaha konservasi TNLL ditingkat desa;

h. LKK adalah forum komunikasi, koordinasi dan negosiasi untuk konservasi TNLL ditingkat kecamatan;

i. Perencanaan Pengelolaan Partisipatif adalah rencana kerja KKM yang disusun oleh LKD bersama BTNLL berdasarkan kepentingan ekologi dan sosial;

j. Hak adalah hak mengelola dan menjaga dan bukan hak milik, yang tidak dapat diperjual-belikan, disewakan atau digadaikan, tetapi dapat diwariskan.

BAB II
MAKSUD DAN TUJUAN
Pasal 2

Maksud KKM adalah:

a. Untuk menyelesaikan konflik penguasaan dan pengelolaan sumber daya alam di TNLL antara masyarakat dengan BTNLL.

b. Untuk mewujudkan pola pengelolaan bersama TNLL antara masyarakat dengan BTNLL.

Pasal 3

Tujuan KKM adalah :

a. Untuk mewujudkan sistem penguasaan dan pengelolaan sumber daya alam yang berbasis masyarakat dan ekologi.

b. Untuk mewujudkan kesejahteraan masyarakat disekitar kawasan TNLL;

c. Untuk menjaga kelestarian fungsi kawasan dan keanekaragaman hayati TNLL.

BAB III
PRINSIP-PRINSIP
Pasal 4

KKM ini berdasarkan prinsip-prinsip:

a. Pengakuan / penghormatan terhadap Hak Masyarakat Adat atas sumber daya alam;

b. Keadilan antara sesama warga masyarakat, antara generasi sekarang dan berikutnya, serta adanya keselarasan antara manusia dengan makhluk hidup lainnya.

c. Berkelanjutan, yaitu pengelolaan berdasarkan kemampuan/daya dukung sumberdaya alam dan lingkungan.

d. Demokrasi dan transparansi dalam perencanaan, pelaksanaan, pemantauan dan evaluasi pengelolaan TNLL.

e. Pengelolaan yang bersifat kemitraan/ kesetaraan antara masyarakat dan BTNLL.

f. Penguatan peran desa / masyarakat adat dalam pengelolaan sumber daya alam di kawasan TNLL.

BAB IV
BATAS-BATAS WILAYAH KKM
Pasal 5

Batas-batas wilayah KKM adalah kawasan TNLL yang merupakan bagian dari wilayah adat Desa WUASA, sesuai peta terlampir yang merupakan satu kesatuan tak terpisahkan dari dokumen KKM.

BAB V
POLA PENGELOLAAN BERSAMA
Pasal 6

a. Pengelolaan sumber daya alam di wilayah KKM dilakukan oleh masyarakat, berdasarkan perencanaan pengelolaan partisipatif yang dibuat oleh LKD (sebagai wakil masyarakat) bersama BTNLL., paling lambat 6 bulan setelah KKM ini ditandatangani oleh semua pihak.

b. Setiap perencanaan berlaku untuk periode tiga tahun, yang dievaluasi sekali setahun, dan dikukuhkan dalam bentuk Peraturan/Keputusan Desa.

c. Perencanaan Pengelolaan Partisipatif dimaksud merupakan satu kesatuan tak terpisahkan dari dokumen KKM.

Pasal 7
Monitoring dan Evaluasi

Rencana untuk melakukan monitoring dan evaluasi terhadap hasil KKM ini merupakan bagian dari Perencanaan Pengelolaan Partisipatif. Dan untuk lebih menjamin tercapainya tujuan bersama dalam pengelolaan TNLL, maka KKM ini harus di-:

a. monitor minimal sekali dalam satu tahun;

b. evaluasi minimal sekali dalam tiga tahun.

Pasal 8

a. Monitoring dan evaluasi dilakukan berdasarkan indikator ekologi yang ditetapkan bersama antara BTNLL dan LKD;

b. Monitoring dan evaluasi dilakukan bersama antara BTNLL dan LKD.

Pasal 9
Kayu

Pada dasarnya tidak diperbolehkan menebang pohon / kayu di wilayah KKM, dengan pengecualian sebagai berikut:

a. Untuk kepentingan sarana umum dan atau ritual adat.

b. Untuk ramuan pembangunan rumah tinggal warga masyarakat Desa.

c. Setiap penebangan berdasarkan izin Lembaga Adat serta rekomendasi dan pengawasan BTNLL;

d. Menanam anakan pohon sebanyak 10 kali lipat dari jumlah pohon yang ditebang.

e. Tidak mengganggu atau merusak fungsi daerah aliran sungai.

f. Tidak untuk diperjual belikan.

Pasal 10
Rotan

Pengelolaan rotan dilakukan secara kolektif dengan mengutamakan warga desa yang miskin, melalui lembaga yang dibentuk melalui Keputusan Kepala Desa dengan syarat-syarat sebagai berikut:

a. Menggunakan rotasi wilayah kerja;

b. Melakukan pengkayaan/ penanaman anakan rotan;

c. Pengambilan umbut rotan hanya untuk keperluan konsumsi rumah tangga dan tidak untuk diperjual-belikan.

Pasal 11

Dalam pengelolaan rotan, dilarang:

a. Menebang pohon tempat rotan melilit;

b. Merusak habitat satwa.

Pasal 12
Hewan dan Burung yang Dilindungi

Untuk semua jenis hewan dan burung yang dilindungi di dalam kawasan TNLL, dilarang untuk:

a. diburu, ditembak, dan dijerat, atau dibunuh dengan cara apapun;

b. ditangkap untuk dipelihara.

Pasal 13
Damar

Pengelolaan getah damar dilakukan secara berkelanjutan dengan memperhatikan fakta-fakta sejarah dan hak-hak yang telah ada sebelumnya.

Pasal 14

Dalam pengelolaan getah damar, dilarang:

a. Menebang atau mematikan pohon damar ;

b. Merusak habitat satwa.

Pasal 15
Sumber Daya Alam Lain

Pengelolaan sumber daya alam lainnya seperti bambu, enau, tumbuhan obat-obatan tradisional, pandan hutan, batu dan pasir, madu dan sebagainya diatur lebih lanjut dalam perencanaan partisipatif dengan mengacu pada prinsip-prinsip KKM (Pasal 4).

Pasal 16
Kebun, Padang Penggembalaan & Pemukiman

a. Pada dasarnya tidak diperkenankan berkebun, bermukim dan menggembalakan ternak di dalam kawasan TNLL.

b. Untuk memenuhi kebutuhan lahan kebun, padang penggembalaan dan pemukiman Masyarakat Desa, diadakan perencanaan partisipatif oleh LKD dengan melibatkan BTNLL dan Masyarakat Desa.

c. Ketentuan dalam huruf (b) dilaksanakan dengan mempertimbangkan fungsi kawasan / ekosistem dan fakta sejarah serta hak-hak adat.

Pasal 17
Pengelolaan Air (Sungai, Danau/ Rawa)

a. Pengelolaan air dilakukan dengan prinsip: Menjaga kualitas air, menjaga kestabilan ketersediaan jumlah/volume air, menjaga habitat/tempat hidup dan mahluk hidup air;
b. Penangkapan ikan dan makhluk air lainnya dapat dilakukan oleh masyarakat Desa dengan menggunakan alat tradisional yang ramah lingkungan seperti kail, bubu dan sebagainya;
c. Pengaturan lebih lanjut diatur melalui perencanaan partisipatif.

Pasal 18

Dilarang:

a. Melakukan segala bentuk kegiatan yang mengakibatkan pencemaran air;
b. Menangkap ikan atau makhluk air lainnya dengan menggunakan strom, zat kimia, racun (temasuk tuba) dan bahan peledak;
c. Memasukkan makhluk air jenis baru ke dalam kawasan TNLL.

Pasal 19
Zonasi

Zonasi dilaksanakan secara partisipatif dengan mempertimbangkan kepentingan-kepentingan ekologi dan sosial.

BAB VI
KELEMBAGAAN
Pasal 20

Untuk menjamin pelaksanaan KKM ini, dibentuk Lembaga Konservasi Desa (LKD) ditingkat desa dan LKK ditingkat kecamatan.

Pasal 21

LKD berfungsi untuk:

a. Mensosialisasikan KKM kepada masyarakat;
b. Melaksanakan perencanaan partisipatif bersama BTNLL;
c. Mengawasi pelaksanaan KKM;
d. Mengevaluasi pelaksanaan KKM;
e. Melaporkan hasil evaluasi KKM kepada Kepala Desa;
f. Mewadahi komunikasi antara Masyarakat dengan BTNLL.

Pasal 22

a. LKD dibentuk berdasarkan Keputusan Kepala Desa sesuai hasil musyawarah desa yang dihadiri Pemerintah Desa, BPD, Lembaga Adat, dan masyarakat lainnya.

b. Masa bakti LKD adalah selama tiga tahun.

c. LKD bertanggungjawab kepada Kepala Desa.

Pasal 23

Keanggotaan LKD terdiri dari unsur-unsur:

a. Pemerintah Desa;

b. BPD;

c. Lembaga Adat;

d. Petugas BTNLL;

e. Pihak lain yang dianggap perlu.

Pasal 24

LKK berfungsi untuk:

a. Mewadahi penyelesaian sengketa, berkaitan dengan TNLL, antara desa satu dengan desa lainnya dalam satu kecamatan;

b. Mewadahi penyelesaian sengketa antara desa dengan BTNLL;

c. Bersama Lembaga Adat, mengikuti/mendukung proses hukum kasus-kasus pelanggaran KKM yang dilimpahkan kepada pihak berwenang;

d. Mewadahi komunikasi antara LKD.

Pasal 25

a. LKK dibentuk berdasarkan Keputusan Kepala Wilayah Kecamatan sesuai hasil musyawarah antara LKD masing-masing desa;

b. LKK bertanggung jawab kepada Kepala Wilayah Kecamatan.

Pasal 26

Keanggotaan LKK terdiri dari unsur-unsur:

a. Utusan setiap LKD;

b. Majelis Adat Pekurehua Tawaelia;

c. Petugas BTNLL;

d. Wakil Pemerintah Kecamatan;

e. Pihak lain yang dianggap perlu.

BAB VII
PELANGGARAN & SANKSI
Pasal 27

a. Barangsiapa melanggar pasal-pasal KKM dihukum berdasarkan hukum adat melalui persidangan terbuka yang diadakan oleh Lembaga Adat;

b. Jenis sanksi yang dijatuhkan berpedoman pada ketentuan-ketentuan KKM yang rinciannya tercantum dalam lampiran dokumen KKM;

c. Penghukuman sebagaimana diatur pada huruf (a) dan (b) tidak meniadakan penerapan penghukuman menurut perundang-undangan;

d. Kasus-kasus pelanggaran KKM yang tidak dapat diselesaikan menurut hukum adat akan dilimpahkan kepada pihak berwenang, dan Lembaga Adat, senantiasa mengikuti proses hukum selanjutnya.

BAB VIII
PENYELESAIAN SENGKETA
Pasal 28

a. Penyelesaian sengketa antara warga masyarakat yang berkaitan dengan KKM diselesaikan melalui mekanisme adat Desa.

b. Penyelesaian sengketa antara Desa dengan desa lain dilakukan melalui musyawarah antara LKD yang diwadahi LKK, dan atas permintaan Lembaga Adat.

BAB IX
LAIN-LAIN
Pasal 29

KKM merupakan bagian dari upaya masyarakat untuk memperoleh pengakuan hak atas wilayah adat (ulayat) baik didalam maupun diluar Taman Nasional, dalam bentuk Peraturan Daerah.

BAB X
PENUTUP
Pasal 30

KKM mulai berlaku sejak ditanda-tangani oleh semua pihak yang tercantum pada bagian akhir dokumen ini.

Pasal 31

Pengakuan Balai Taman Nasional terhadap KKM dapat diakhiri apabila berdasarkan hasil evaluasi yang dilakukan secara bersama oleh LKD dan BTNLL menemukan bahwa KKM tidak berhasil mengendalikan kerusakan fungsi Taman Nasional.

Pasal 32

Hal-hal yang belum diatur dalam KKM, apabila dianggap perlu akan diatur melalui musyawarah pihak-pihak terkait.

KESEPAKATAN KONSERVASI INI DIBUAT BERDASARKAN KESEPAKATAN MASYARAKAT DESA WUASA DAN DITANDA-TANGANI OLEH :

Atas Nama Masyarakat Desa Wuasa;
Wuasa, Januari 2002.

Ketua Lembaga Adat,	Ketua BPD,	Kepala Desa,
(A.S. P. Nokiro)	(Harongi Tebo)	(Yuser T. Gae)

Mengetahui;
Kepala Wilayah Kecamatan Lore Utara,
Wuasa, Januari 2002

CAMAT

(Drs. Jefferson Gaibu)
NIP. 570008066

Mengakui;
Kepala Balai Taman Nasional Lore Lindu,
Palu, Januari 2002

(Ir. Banjar Yulianto Laban, MM.)
NIP. 080052881

Menyetujui;

Bupati Kabupaten Poso,	Ketua DPRD Kabupaten Poso,
Poso, 2002	Poso, 2002
(Drs. Abd. Muin Pusadan)	(Drs. H. Akram Kamaruddin)

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LAMPIRAN 1

SEJARAH DESA

SEJARAH DESA WUASA

I. Pendahuluan

Penyusunan sejarah desa Wuasa mengandung maksud agar kita semua lebuh mengenal dari dekat asal-usul desa Wuasa dan mengetahui pula perkembangannya dari masa-kemasa, tertama pewaris desa ini agar bisa menjadikannya bahan kajian lebih lanjut.

Disusun berdasarkan cerita turun temurun dari generasi ke generasi oleh para orang tua sebagai nara sumber.

Penyusunan sejarah desa Wuasa tidak terlepas dari bagian sejarah Napu sebagai pengarah dalam penyusunannya, dan erat kaitannya dengan sejarah berdirinya desa Wuasa.

Disadari pula bahwa dalam penyusunan ini tentu banyak kekurangannya, oleh karena itu memerlukan penyempurnaan dari semua pihak terutama bagi yang mengetahui sejarah berdirinya desa Wuasa.

II. Sekilas Tentang Sejarah Napu

Lembah Napu adalah Dataran Tinggi Sulawesi Tengah yaitu kurang lebih 1200 meter dari permukaan laut, dikelilingi oleh pegunungan sehingga bentuknya seperti kuali besar, ditengahnya mengalir sungai Lairiang yang berhulu di Tawaelia (Desa Sedoa), dan Bermuara di Selat Makassar Mamuju Sulawesi Selatan. Semua sungai dan anak sungai lembah Napu bermuara ke Sungai Lairiang sehingga semakin ke Selatan semakin besar dan dalam.
Dataran Lembah Napu sebagian terdiri dari Padang rumput, dataran perkampungan, dan hutan rimba.
Menurut hikayat atau ceruta tueun temurun, ribuan tahun yang lalu lembah Napu adalah danau yang luas yang disebut " Rano Raba ."
Disekeliling danau di atas bukit /gunung bermukimlah kelompok kelompok masyarakat berbentuk paguyuban yang dipimpin oleh seorang yang dituakan yang disebut TUANA. Kelompok – kelompok masyarakat tersebut adalah :

- To Huku (Diatas desa Wanga) bahasa yang digunakan adalah bahasa Huku.
- To Makumba (Diatas desa Siliwanga)
- To Malibubu (Sebelah Barat desa Watutau, sebelah Utara desa Betue)
- To Urana (Sebelah Timur desa Talabosa)
- To Beau (Sebelah Selatan desa Watutau/ Sebelah Timur desa Betue)

- To Atuloi (Sebelah Utara Desa Dodolo)
- To Beloka (Sebelah Timur desa Tamadue)
- To Kapa (Sebelah Selatan desa Tamadue)
- To Wawowula (Sebelah Selatan desa Tamadue)

Kemudian Tobeloka , To Kapa, Towawula, bergabung membuat pemukiman baru di atas bukit Winua yang mempunyai bahasa sendiri yang disebut bahasa Winua. Tempat ini disebelah Timur Tamadue terdapat patung Pekasele dan Pekatalinga dua kilometer dari desa Tamadue.

Ada banyak lagi kelompok – kelompok masyarakat yang belum diinventarisir tetapi bukti pemukiman diatas bukit/gunung masih ada bekasnya sampai sekarang ini seperti disebelah Utara desa Winowanga disebelah Utara Desa Alitupu dan disebelah Utara Desa Wuasa yang disebut dengan POWANUANGA SAE (Perkampungan tua).

Kelompok-kelompok masyarakat ini saling mengetahui / mengerti bahasa, yang akhirnya sekarang terkenal dengan bahasa Napu.

Suatu saat Rano Raba (Danau Raba) dikeringkan dengan upacara adat atas petunjuk Alla Ta Ala melalui Towalia (Para Normal) dengan menggali aliran danau disebelah Selatan desa Torire sekarang, yang akhirnya menjadi sungai Lairiang melewati Lore Selatan dan bermuara di Mamuju Sulawesi Selatan.
Semakin lama Rano Raba semakin kering dan beberapa ratus tahun kemudian menjadi Padang rumput dan hutan Rimba, tinggal Rano Wanga (danau Wanga) dan Rano Ngkio sebelah Selatan desa Alitupu sekarang.

Dengan melihat dataran yang baik untuk penggembalaan ternak, dan untuk pertanian , maka kelompok masyarakat tadi turun ke Lembah untuk membuat pemukiman baru yang dikenal dengan nama :

1. To Kalide sebelah selatan Desa Tamadue (suku Winua), pada saat itu tibalah seorang Manuru yang kawin dengan perempuani Bangsawan Putri Raba dengan turunan yaitu : Tindarura (Gumangkoana), Madusila, Ralinu, Sadunia, Madikampudu (Kompalio), Pua, Rabuho (Perempuan), Rampalili.
2. To Habingka (suku Winua)
3. To Gaa (suku Winua)
4. To Lengaro (suku Huku, To Makumba, To Malibubu)
5. To Pembangu (To Urana, To Beau, dan sebagian TO Malibubu yang sekarang menjadi Suku Watutau)
6. To Mamboli (Suku Winua)

7. To Pekurehua (Kumpulan masyarakat yang akhirnya menjadi perkampungan besar yang dipimpin oleh seorang Panglima bernama Tindarura (Gumangkoana) yang memberi nama Lembah ini dengan PEKUREHUA.

Disetiap p-emukiman didirikan Powoha tempat musyawarah adat masyarakat setempat. Sedangkan tempat musyawarah adat seluruh Bangsawan Napu dibangunlah Duhunga di Lamba, dan akhirnya Lamba menjadi pemukiman baru yang disebut Tolamba.

Didalam duhunga Lamba inilah setiap tahun dilaksanakan upacara ritual adat MOENDE bagi arwah Jenazah para Bangsawan Napu yang tuidak dikuburkan, nanti dikuburkan setelah Belanda masuk di Napu Tahun 1919.

III. Penduduk Asli Desa Wuasa

Sebagaimana telah dipaparkan di atas bahwa disebelah Utara desa Wuasa ada Powanuanga Sae atau pemukiman/perkampungan tua. Menurut cerita di Perkampungan ini hiduplah sekelompok Masyarakat yang dipimpin oleh seorang yang dituakan yaitu MPEBIARO kurang lebih ratusan tahun yang lalu, ketika itu masyarakat telah berbudaya.

Mpebiaro adalah seorang yang memiliki sifat suka menantang perang tanding satu lawan satu, suatu saat dia menentang ke daerah "Lemba" (sekarang Sigi Biromaru), disana dia mendapat lawan yang kuat yang bernama "Latandu" yang sebenarnya adalah sahabatnya sendiri. (jauh sebelumnya Napu telah mempunyai hubungan baik dengan Masyarakat Lemba tidak terkecuali masyarakat dibawah pimpinan Mpebiaro , Jalan yang mereka tempuh adalah lewat Torongkilo, Salu Mparapa, Mamawa. Adale, Susumalindu, kemudian turun ke Banga-Banga sampai Dongi-dongi mengikuti sungai dan tiba di Bora Atau Lemba).
Untuk menjaga kemungkinan akibat tantangan Mpebiaro ini, maka seluruh masyarakatnya dipindahkan ke suatu tempat yang disebut PENGKATUHA sebelah Selatan desa Alitupu dekat Rano Ngkio. Sebagai Tanda bagi masyarakatnya bahwa musuhnya telah datang maka digantunglah gendang besar yang dipukul sebagai tanda agar masyarakatnya mencari perlindungan terutama bagi wanita dan anak – anak, karena Mpebiaro sudah merasakan kekuatan Latandu, sebab sudah berbulan – bulan mereka berperang tanding namun belum tanda – tanda ada yang kalah.

Suatu saat mereka melakukan pertandingan yang terakhir di Torongkilo, Gunung disebelah Utara Desa Wuasa /sebelah Barat Desa Watumaeta dengan perjanjian apabila tidak ada yang kalah, maka pertandingan ini berakhirlah,sama-sama menang dan sama-sama kalah. Namun ketika

mereka bertanding sama-sama menderita luka parah sehingga mereka berpisah. Mpebiaro kembali ke tempatnya untuk menyembuhkan lukanya dan langsung berkubang , sampai saat ini tempat itu dinamakan Pentumbana Mpebiaro (Kubangan Mpebiaro) sampai menemui ajalnya dan dikuburkan di dekat situ, kuburan itu masih ada sampai sekarang. Mahluk air yang ada ditempat itu semuanya berwarna merah (ikan, udang, dll). Sedangkan latandu dengan menderita luka parah kembali ke lemba namun disusumalinda meninggal dunia dan kuburannya ada sampai sekarang ini, tempat itu dianggap keramat, apabila kita lewat ditempat itu tidak dibenarkan untuk ribut atau bercakap-cakap.

Setelah Mpebiaro meninggal dunia maka masyarakat ini menetaplah dan membuat pemukiman di Pengkatuhua terbukti di tempat itu sekarang ada patung /bekas pemukiman, dan disanalah mereka membuka persawahan dan terbukti sekarang ada pematang bekas sawah.

Berpuluh tahun setelah Mpebiaro meninggal dunia ± akhir abad ke dua belas masyarakat Napu diserang oleh TOMENE (orang ganas dari seberang diperkirakan adalah suku Mongolia yang pada saat itu dibawah kekuasaan KHU BHI LAIKHAN). Penyerangan ini dilakukan secara tiba-tiba melalui Lemba sehingga terjadi peperangan yang tidak seimbang, ketika menyerang Pengkatuhua masyarakat tidak siap sehingga semuanya habis terbunuh dari anak-anak sampai orang tua, tapi ketika menyerang pemukiman masyarakat Napu yang lainnya terjadilah perlawanan yang sengit yang menyebabkan banyak korban jiwa dikedua belah pihak,oleh karena semua kekuatan sudah terkumpul sehingga laskar Tomene terpukul mundur maka di Tawaelia/Sedoa dan semua laskar Tomene yang kembali melalui aliran sungai Tawaelia dihadang oleh laskar Napu, sehingga ada satu tempat yang dinamakan Pototowaa,(tempat memancing kepala Tomene)masih ada sampai sekarang, tidak satupun laskar Tomene yang lolos pada saat itu.

Menurut perkiraan para bangsawan Napu pada saat itu bahwa pada pemukiman Pengkatuhua tidak ada lagi manusia, tetapi pada suatu saat dari Lengaro mereka dapat melihat asap di dalam hutan disekitar Pengkatuhua, sehingga diutuslah beberapa orang untuk meninjau sumber asap itu, ternyata mereka menemukan seorang wanita muda lolos dan bersembunyi dalam sebuah gendang besar yang digantung di pohon kayu pada zaman Mpebiaro dulu ketika pemukiman ini diserang Tomene. Wanita muda lagi cantik itu ternyata masih garis keturunan Mpebiaro asli penduduk perkampungan dan pemukiman tua sebelah Utara desa Wuasa sekarang ini.

Wanita muda ini kemudian dikawini oleh seorang pria dari Lengaro, dan mereka tetap tinggal di lokasi Pengkatuhua, dan mulai sampai saat itulah banyak orang pindah ke lokasi itu terutama dari Lengaro karena daerah ini sangat subur dan segala yang ditanam tumbuh dengan baik, terutama mereka mengikuti jejak saudara dan keluarganya yang mengawini wanita Pengkatuhua ini.

Penduduk Pengkatuhua semakin bertambah sehingga areal pertanian mereka mengarah ke sebelah Utara disekitar sungai Lairiang diantara desa Wuasa dan desa Alitupu sekarang. Mereka masih hidup nomaden (berpindah – pindah belum membentuk perkampungan tetap).

Zaman terus berganti, masyarakat semakin berbudaya, keturunan Mpebiaro masih ada sampai sekarang dengan silsilah sebagai berikut : Nenek yang ada sekarang berusia 114 tahun dan diperkirakan lahir pada tahun 1888 bernama Sinewu (Inana Gambu) anak dari Mpede (Inana Sinewu) diperkirakan lahir 1778 (sampai usia 110 tahun) yang menikah dengan Pau (Lengaro), setelah Mpede meninggal dunia Pau kawin di Sedoa dan lahirlah Tongko (umana Pongge) dan Inana Tongki yang masih ada sampai sekarang di desa Sedoa.

Mpede anak dari Maru dan Ngkaboba, Maru adalah orang Lengaro sedangkan Ngkaboba adalah turunan dari wanita yang ditemukan bersembunyi dalam gendang besar pada saat peristiwatersebut di atas. Ngkaboba diperkirakan lahir pada tahun 1670 .

Demikianlah sedikit gambaran bahwa disekitar Wuasa sebelum bernama Wuasa dengan upacara adat sudah ada penduduk asli yang bermukim Di Powanuanga Sae yaitu sekitar zaman Mpebiaro ± abad ke 12. Lokasi itu sekarang masuk dalam zona pemanfaatan Tradisional Taman Nasional Lore Lindu.

IV. Berdirinya desa Wuasa (asal usul nama Wuasa)

Apabila kita memperhatikan letak pemukiman suku Napu zaman dahulukala / prasejarah sudah barang pasti kita temui di tempat – tempat ketinggian (bukit) dimana mereka menganggap bahwa ditempat tersebut lebih aman dari serangan suku lain.

Demikianlah di bukit Peore, berdirilah sebuah pemukiman atau kampung yang didiami oleh beberapa orang bangsawan yang mempunyai hubungan keluarga diantaranya Polite dan Kareba alias Umana Baturu. Kampung tersebut diberi nama Peore yang sekarang bergeser agak ke Selatan dan disebut desa

Watutau , sehingga kampung Peore yang dulunya menjadi pusat perlawanan penjajah Belanda sekarang menjadi lokasi pekuburan tua desa Watutau. Dari tempat itu pula suku Napu mempersiapkan upeti yang akan dipersembahkan kepada Raja sigi di Kampung Bora akibat kekalahan pada perang perang suku dan diserahkan oleh seorang bangsawan yaitu Kareba alias Umana Baturu. Perjalanan mengantar upeti dipergunakan oleh Kareba untuk memperhatikan keadaan tanah dan hutan yang mereka lalui termasuk dataran atau hutan yang sekarang menjadi desa Wuasa.

Pada suatu hari Kareba memerintahkan beberapa orang laki laki untuk berburu di tanah datar yang pernah mereka lalui mengantar upeti, sambil memeriksa keadaan tanah disekitar situ dengan ketentuan mereka harus bermalam di bukit yang pernah mereka tempati ketika pergi mengantar upeti. Dari tempat itulah mereka mulai berburu arah Timur yang pada akhirnya mereka menemui hamparan Padang rumput yang luasnya kurang lebih 40 ha , sekarang menjadi lokasi SMP Negeri Wuasa ke Selatan sampai gilingan padi milik Drs Darius Mondolu. Dari situlah yaitu sebelah Utara SMPN Wuasa salah seorang anak buah Kareba menemukan sebuah pohon yang berbuah lebat dan berjatuhan karena masak, Buah tersebut sangat harum baunya, namun mereka belum mengetahui apakah buah tersebut dapat dimakan atau tidak. Akhirnya atas kesepakatan mereka harus kembali ke kampung untuk melaporkan hasil perjalanan tersebut dan menyerahkan buah tersebut kepada Kareba.

Setelah memperhatikan hasil yang dicapai oleh pemburu-pemburu tersebut, kareba mengambil keputusan untuk memenggil salah seorang budak untuk memakan buah tersebut dengan ketentuan apabila budak tersebut tidak mati setelah makan buah itu maka buah tersebut dapat dimakan. Pengamatan itu dilakukan selama 3 hari yang berakhir dengan pengumuman dari Kareba sbb : Karena orang ini tidak mati memakan buah ini maka mulai hari ini saya nyatakan dapat dimakan (sambil makan) dan kita beri nama Asa sesuai dengan nama orang yang pertama menemukannya. Dan besok saya akan pergi melihat tempat dari pohon yang berbuah itu.

Keesokan harinya dengan membawa laki-laki yang kuat dan bekal yang cukup banyak, berangkatlah Kareba menuju tempat pohon itu berada, dengan bermalam pada bukit yang sering ditempati mengantar upeti kepada raja Sigi. Setelah mereka menemukan pohon tersebut, Kareba langsung mengambil keputusan untuk membuka hutan di atas bukit tersebut dan dijadikan lahan pertanian kenmudian kembali ke kampung. Ditengah perjalanan kembali ke kampung Kareba lebih banyak berbicara tentang keinginannya untuk pindah dan membuat pemukiman baru ditempat mereka berburu, karena pada saat itu dia sedang ada pertentangan paham dengan Ama alias Umana Soli. Sesampainya di Wanua Peore beliau langsung menemui saudara perempuannya yang bernama Polite (yang diangkat menjadi raja Lore, sekaligus Istri dari Magau Lore yaitu Kabo) untuk menyampaikan hasil perjalanannya berburu, serta menyampaikan niatnya untuk pindah bersama seluruh keluarganya ke lokasi perbururan tersebut.

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Mulai saat itu secara bergantian diperintahkannya orang untuk ke lokasi tersebut sambil membuka lahan dan menanam jagung, ubikayu, pisang,padi,keladi dsbnya.

Satu tahun kemudian, setelah seluruh persiapan lengkap diatur, Kareba meminta pamit / izin kepada saudaranya polite untuk pindah di tempat pemukiman yang sudah disediakan yaitu bukit yang sekarang disebut Paidana Umana Baturu (tempat tinggal Kareba). Setelah mereka memindahkan ternak kerbau di padang sebelah Timur pemukiman (sekarang lokasi SMPN Wuasa, ia memerintahkan orang – orangnya untuk membuka lahan baru disekitar padang tersebut , dan Kareba mulai membuat pondok baru, sekarang rumah makan Sendy .

Demikianlah beberapa tahun mereka berada di tempat itu, ternyata kebun tidak berhasil dengan baik, sehingga ia menyatakan untuk pindah ke Selatan Padang, sekarang menjadi gilingan padi Drs Darius Mondolu.
Keadaan tidak berubah, akhirnya ia mengambil keputusan untuk pindah kearah Selatan mendekati Sungai Pembala, sekarang bekas lapangan udara Cessna Wuasa yang dibuktikan dengan adanya kuburan tua di tengah Wuasa. Ditempat inilah hidup mereka mulai berkecukupan karena hasil pertanian sangat memuaskan. Keluarga keluarganya diperintahkan untuk membuat pondok yang saling berdekatan sebagai tempat pemukiman .

Dengan memperhatikan kadaan yang sudah sangat baik iapun merencanakan pembuatan Duhunga sebagai tempat tinggal, Mogombo sebagai tempat musyawarah, dan tempat penyembahan berhala, bahwa Duhunga tersebut adalah suatu tanda atau syarat bahwa suku Napu / Pekurehua , sebelum mendirikan Wanua/boea atau Kampung terlebih dahulu harus membangun Duhunga sesudah itu baru masyarakat lain boleh mendirikan rumah yang disebut Sou Tambi.

Setelah Duhunga tersebut selesai dibuat (sekarang lokasi makam Almarhum Kareba alias Umana Baturu), iapun merencanakan peresmian Wanua yang disebut Mowahe Wanua/Boea atau kampung, bertepatan dengan selesai panen padi ladang persiapan mulai dilakukan , akhirnya Kareba pergi kepada Topowalia (Imam Animisme) di Lengaro (sekarang Trans-Siliwanga) untuk menanyakan tentang rencana Mowahe Wanua / Boea, dengan jawaban bahwa apabila Kareba mau Mowahe maka harus membunuh 1 orang manusia.
Mendengarkan keputusan tersebut, Kareba melanjutkan perjalanan ke Wanua Peore untuk menemui saudaranya yaitu Polite meminta satu orang budaknya dibeli untuk dibunuh dalam acara peresmian kampung (Powahe Wanua).
Dengan rasa ikatan persaudaraan, dikabulkanlah permintaannya dan menyerahkan seorang budak sebagai Popowahe Wanua, sambil mengundang saudara-saudaranya untuk menghadiri persemian Powahe Wanua tersebut.

Akhirnya tibalah saat yang dinantikan pada bulan Agustus 1893, Kareba alias Umana Baturu disaksikan oleh seluruh bangsawan Pekurehua/Napu (Lengaro, Huku, Ga'a, Panto, Habingka, Winua, dan Lamba) sekarang berlokasi

di kompleks makam almarhum Kareba, diresmikanlah Wanua / Boea melalui upacara helaik yang tersusun sebagai berikut:

I. Penanaman pohon beringin didepan duhunga sebagai tempat memberi makan roh kepercayaanya (Ala Taallah)

II. Pembunuhan satu orang manusia yang bernama Mantulu oleh Kareba dengan bambu runcing yang jarak dari Duhunga 77 depa arah Timur Laut Duhungan sesuai petunjuk Topowalia. Mantulu dengan tangan dan kaki terikat dibawa ketempat yang tel;ah disiapkan (sekarang kintal rumah saudara Rulan Ngkuno / cucu Almarhum Kareba). Lalu oleh Kareba menikam dengan bambu runcing yang didahului dengan teriakan dan menengadah ke langit. "Nupehadingi Ala Taallah: Kuaro ide wanua iwongko wahe tauna, Hai ku hanga Wuasa, Bona memule nodo powua asa hai mawongi hangana nodo kawongi Wua asa" (artinya: dengarkanlah ya Alataala, sayamau bangun ini kampung diatas darah manusia dan saya sebut Wuasa agar berkembang biak seperti pohon asa dan harum namanya seperti harumnya buah asa) ... setelah itu, orang tersebut ditikam.

Demikianlah Kareba memimpin wanua Wuasa hingga meninggal pada tahun 1910. Pada saat Wuasa diresmikan, mulailah rumpun-rumpun keluarga dari kampung lain berdatangan pindah ke Wuasa, seperti orang Lengaro, Huku, Watutau (Peore), Lamba, Ga'a, Habingka, dan Malibubu.

Setelah Kareba meninggal dunia, umana Rongke (anak mantu Kareba) diangkat sebagai pemimpin / kepala Kampung

Legenda dari kalangan masyarakat Pengkatuhua

Setelah peristiwa penyerangan Tomene masyarakat Pengkatuhua semakin bertambah banyak maka muncullah seorang pria yang bernama Merou, dia memiliki sifat yang sangat berbeda dari Mpebiaro sebagai leluhurnya. Mpebiaro memiliki sifat pemberani (Heroik) namun murah hati, membela dan mengayomi saudara – saudaranya, tetapi Merou walaupun memiliki sifat pemberani tetapi berhati kotor dan semena – mena memperlakukan saudara – saudaranya, ia suka merampas harta orang, istri orang dan lain sebagainya.Oleh karena itu ia dibenci dan tidak disenangi oleh saudara – saudaranya.

Para keluarga kemudian mengadukan hal tersebut kepada para bangsawan Napu agar Merou dibunuh atau disingkirkan dari Pengkatuhua karena menyengsarakan banyak orang.

Maka bersidanglah para bangsawan untuk menentukan siapa yang akan memerangi Merou, atas kesepakatan bersama, bangsawan dari Makumba (sebelah Barat desa Siliwanga) yang ditunjuk untuk memerangi Merou. Pada saat

yang ditetapkan berangkatlah Mereka untuk berperang melawan Merou. Merou kalah dan lari menyelamatkan diri, dia bersembunyi di Gunung Binti Pondo (sebelah Timur Desa Sedoa), Dia kemudian bersumpah bahwa barang siapa penduduk asli Pengkatuhua yang datang ke Binti Pondo, bila tiga orang yang datang, 2 orang akan saya bunuh atau akan hilang di pegunungan tersebut. Sumpah tersebut masih dipercaya hingga sekarang ini, sehingga tidak satupun turunan asli Wuasa yang berani ke Binti Pondo dan merupakan hal yang tabu atau terlarang untuk memeasuki Binti Pondo.

V. Silsilah Pemerintahan Desa Wuasa

Agustus 1893 : Peresmian Powahe Wanua dengan upacara adat Helaik yang dipimpin oleh Kareba Alias Umana Baturu sekaligus sebagai Kepala Suku/ Tadulako untuk Wanua Wuasa. Wuasa berarti mangga hutan yang harum/busuk, manis asam rasanya yang ditemukan oleh pemburu bernama Asa. Wuasa berasal dari kata Wua yang artinya buah dan Asa nama penemu buah tersebut.

1893 – 1908 : Wanua Wuasa dipimpin oleh Kareba alias Umana Baturu, ketika itu pemerintah masih berbentuk kerajaan

1908 – 1927 : Kompeni Belanda mengangkat Kabi alias Umana Rongke menjadi kepala kampung.

1927 – 1929 : Kampung dipimpin oleh Umana Mora

1929 – 1935 : Kampung Wuasa terbagi menjadi dua bagian yaitu Kampung Raa dipimpin oleh Balilo Boka Alias Umana Yuliana, dan Kampung Wuasa Pohapea yang dipimpin oleh Behoa Kareba alias Umana Wile. Pada Tahun itu Umana Mora adalah kepala Distrik.

1935 – 1955 : Wuasa dipersatukan kembali menjadi kampung Wuasa yang dipimpin oleh Abe alias Umana Mora yang juga merupakan kepala distrik Napu oleh pemerintah Belanda.

1955 – 1960 : Kepala kampung adalah Pidi Boka alias Umana Lili.

1960 – 1962 : Kepala Kampung Adalah Tomba Abe Alias Umana Sani.

1962 – 1964 : Kepala kampung adalah Paulus Kabi alias Umana Beti.

1964 – 1966 : Kepala kampung adalah Tomba Abe Alias Umana Sani.

1966 – 1967 : Kepala Kampung adalah Paulus alias Umana Beti.

1967 – 1981 : Kepala Kampung adalah Tomba Abe alias Umana Sani.

1981 – 1998 : Kepala desa adalah Leki Boka alias Umana Jefri.

1998 – sekarang : Kepala desa adalah Yuser. T. Gae alias Umana Sabo.

VI. Sejarah Pembangunan Desa

1893 – 1927 : Rumah kediaman penduduk masih berbentuk Sou Tambi dan Sobingku dan tempat pertemuan adalah Duhunga dan Mogombo. Sou Tambi adalah rumah adat yang hanya mempunyai satu pintu

tanpa serambi, atapnya terbuat dari bambu secara menyeluruh dari atas sampai kebawah sekaligus sebagai dinding.

1909 – 1910 : Penginjilan Masuk ke Napu dan 1910 gereja Protestan mulai dibangun

1927 – 1955 : Rumah penduduk Sou Tambi diubah menjadi rumah panggung.

1930 – an : Pembangunan Masjid pertama di Popahudua (lokasi pemukiman suku Bugis).

1950 – an : Pembangunan Mesjid di desa Wuasa

1950 – an : Gereja Kristen Sulawesi tengah mulai dibangun.

1955 – skrg : Rumah penduduk dibangun secara semi permanen dan permanen.

1960-an : Pembangunan Gereja Pantekosta.

1977 : Pembangunan mesjid Al-Musafir (Masjid tua) yaitu mesjid pertama, sekarang menjadi Taman Pengajian Al-Ikhsan.

1962 – 1963 : Pembangunan gereja tua (GPID)

1962 : Pembangunan Sekolah Menengah Negeri Wuasa secara swadaya.

1973 : Pembangunan Sekolah dasar Inpres.

1976 – 1977 : Pembangunan dan Peresmian Lapangan Udara Cesna sekaligus kunjungan Kerja Gubernur Sulteng AM Tambunan.

1979 : Perintisan/ pembukaan jalan tembusan ke Palu oleh PT Kebun Sari.

1980 : Pertama kalinya Buldozer mauk desa Wuasa.

1980 an : Pembangunan Balai Desa di lokasi eks Pasar Inpres.

1982 : Kendaran roda empat (mobil kijang) mulai masuk Wuasa

1990 : Pembangunan gereja GPID

1995 : Pembangunan mesjid Al-Amin yang diresmikan oleh ketua Pembangunan Mesjid tahun 1997.

1995 – 1996 : Pengaspalan jalan dengan kontraktor Trio Celebes.

1999 : Pengaspalan jalan ke dusun 1.

VII. Kejadian Penting

1893 : Peresmian kampung dengan upacara adat Helaik

1907 : Belanda masuk dan mulai mengatur perkampungan/Pemerintahan.

1909 : Penginjilan masuk Napu.

1928 : Terjadi wabah penyakit yang mengakibatkan ratusan orang meninggal dunia yaitu rata – rata 6 – 7 orang perhari.

1933 : Kampung dilanda wabah Kolera yang menyebabkan banyak masyarakat meninggal dunia.

1939 : Bencana alam banjir yang mengakibatkan sebagian besar sawah tertimbun pasir termasuk kebun kopi Robusta seluas 140 ha.

1947 : Terjadi angin ribut mengakibatkan kerusakan bangunan sekolah dan rumah penduduk termasuk 2 orang warga mengalami patah kaki.

1970 : Penyakit akibat Systocimiasis mulai dikenal di lembah Napu, ketika tahun 1972 diadakan pemeriksaan ternyata 40 % penduduk mengidap penyakit ini. Gejala yang dirasakan adalah sakit perut dan rasa malas yang menyebabkan masyarakat tidak tahan bekerja di sawah. Cacing Systo ditemukan oleh seorang dokter dari Amerika yaitu dr. systocimiasis, awalnya ada pasien yang sudah sangat payah dirawat oleh dokter tersebut dan akhirnya meninggal dunia. Dokter membeli mayat tersebut dan dibawa ke Amerika untuk dibedah dan di teliti, hasil penelitian tersebut menunjukan bahwa didalam tubuh mayat tersebut terdapat cacing yang sudah berkembang biak dengan cepat. Tahun 1982 Ikatan Dokter Indonesia datang ke lembah Napu untuk menyatakan bahwa ada sejenis cacing yang dapat mematikan hidup di lembah Napu, Tahun tersebut LIPI menemukan obatnya. Setelah obat ditemukan Prevalensi orang yang mengidappenyakit tersebut menurun drastis tinggal 5 % dan sekarang menjadi 0,8 %.

1962 : Terjadi kelaparan (paceklik) karena tanaman diserang hama ulat dan tikus (serangan belalang untuk tanaman padi).

1985 : Terjadi kemarau panjang yang menyebabkan hasil pertanian menurun.

1997 : Kunjungan kerja Gubernur Azis Lamadjido.

1999 : Kunjungan Kerja Gubernur HB Paliudju.

VIII. Kehidupan masyarakat Tradisional

1. Cara bercocok tanam masyarakat adat wanua wuasa zaman dahulu adalah berkebun secara berkelompok dengan menggunakan lahan secara berpindah – pindah yaitu menanam tanaman jangka pendek yaitu padi berumur 5 – 7 bulan, jagung, Ubi kayu, keladi . Dengan jenis padi lokal yaitu Lamoa, Laro, Kambalate, Tobanasu. Tetapi saat ini masyarakat Wanua Wuasa sudah memiliki lahan tetap baik kebun maupun sawah.
2. Cara memungut hasil hutan antara lain :
   - Damar : pohon damar ratetesi atau dilukai / dideres sistem sadap lalu dibiarkan selama 3 bulan baru hasil getahnya dipungut.
   - Daun pandan hutan : daun muda diambil untuk diproses menjadi tikar, Boru (tudung), Topi dll.
   - Rotan : Rotan hanya diambil untuk keperluan pengikat pagar, pengikat rumah, penangkap dan pengikat hewan serta kebutuhan peralatan rumah tangga lainnya.

- Bambu ditanam dan diambil hasilnya untuk membuat alat penimba air , atap rumah , pagar, memasak, alat rumah tangga dsb.
- Kayu diambil untuk keperluan pembangunan rumah dan pembangunan fasilitas umum, serta kayu bakar.

3. Cara Memelihara hutan
   - Hutan yang dinamakan Tobu tidak boleh dibuka dan dirambah tanpa restu Topolimba anitu Atau setan penghuninya akan marah, membuka lahan atau menebang pohon harus melakukan upacara adat tertentu yang nantinya akan diketahui apakah bisa dilakukan atau tidak.
   - Pandulu atau tempat penggembalaan tidak boleh sembarangan dibuka harus dengan prosesi tertentu.
   - Powanuanga adalah tempat – tempat khusus yang tidak bisa dimasuki oleh sembarang orang
   - Perlindungan terhadap air adalah tidak boleh menebang pohon disekitar air sumber air, tidak boleh membuang sampah sembarangan.
4. Upacara – upacara adat wuasa :
   - Polimba Anitu
   - Menuru
   - Mopatoa (memulai suatu kegiatan)
   - Nakaratai (upacara oleh paranormal meramal)
5. Arsitektur rumah adat Tradisional adalah pembuatan Sou bingke, Pangka, Bambaru, Tambi, Duhunga, Howa dipegang oleh Tadulako Paratai.
6. Cara pengobatan tradisional .
   - Ratawuesi adalah pengobatan kebatinan dengan ditiupdan dibarengi dengan doa – doa.
   - Rapanimbunui pengobatan dengan ramuan khusus (mengurut)
   - Rarihohi adalah Pengobatan dengan cara menggosok pada bagian yang sakit dengan ramuan obat tradisional khusus untuk penyakit kulit, terbakar dan kena air panas.
   - Rambalu adalah Pengobatan dengan mengkompres bagian yang sakit dengan obat tradisional seperti bengkak – bengkak, bisul dan akibat panas yang tinggi.
   - Modade atau Mampenoumba adalah suatu pernyataan untuk mempertanyakan apakah penyakit masih dapat disembuhkan atau membawa kematian yaitu dengan upacara khusus dengan nyanyian para normal yang bertanya pada kekuatan gaib apakah penyakit masih dapat disembuhkan.
   - Radila adalah pengobatan dengan mempergunakan daun khusus (daun Bono) yang ditempelkan kebagian tubuh yang sakit kemudian daun itu dijilat oleh dukun.
   - Ralito atau Mampebara adalah Cara memperkirakan asal atau sumber penyakit dengan mempergunakan rambut dari orang yang sakit.

- Rapangka Merupakan pengobatan bagian tubuh yang keseleo dengan mengurut dengan telapak kakinya, keahlian ini diwariskan khusus pada turunannya.
- Rawukai adalah cara pengobatan dengan kekuatan kebatinan dapat mengeluarkan sesuatu yang dikirim atau dibuat oleh tukang santet dari dalam tubuh orang yang sakit.
- Radoi adalah cara pengobatan dengan memandikan seseorang pada subuh dini hari dengan ramuan obat-obatan tradisional yang disiapkan, Khusus orang sakit karena jatuh yang tidak menyebabkan patah tulang, luka dan capek atau kelelahan.
- Mopahonga adalah pengobatan dengan mempergunakan air mendidih yang dicampur dengan obat tradisional, dituang pada wadah khusus kemudian orang yang sakit membungkus diri dengan wadah tersebut agar uap air obat meresap ke dalam tubuh.
- Rapieri adalah pengobatan yang mempergunakan air daun obat tradisional yang diteteskan pada mata yang sakit, pada luka terkena benda tajam, digigit anjing, dll. Dan atau mata yang normal ditetes dengan ramuan obat tradisional agar tangkas melihat setiap gerakan yang mencurigakan terutama untuk pemain silat atau mempunyai ilmu beladiri

7. Transportasi pada zaman dahulu adalah semua hasil bumi diangkut dengan tenaga manusia atau tenaga kuda (pateke) sedangkan sistem pemasaran adalah dengan cara tukar menukar barang atau barter.

LAMPIRAN 2

USULAN RENCANA PENGELOLAAN PARTISIPATIF

USULAN RENCANA PENGELOLAAN PARTISIPATIF
UNTUK
KESEPAKATAN KONSERVASI MASYARAKAT ADAT WANUA WUASA, DESA WUASA , KEC. LORE UTARA, KAB. POSO

I. PENDAHULUAN

1.1 Latar belakang

Keberadaan Taman Nasional Lore Lindu bagi masyarakat Lore Utara khususnya bagi masyarakat adat Wanua Wuasa saat ini adalah suatu pilihan yang cukup sulit. Dulunya hutan TNLL adalah sahabat masyarakat yang ditandai dengan adanya pengelolaan yang saling menguntungkan. Masyarakat dapat memenuhi kebutuhan hidupnya dari areal tersebut, tetapi juga dapat menjaga areal tersebut dari kerusakan dengan kearifan yang mereka miliki. Sebuah hubungan yang mutualis dan terbukti pada era itu hutan tetap terjaga. Kini ketika hutan itu berstatus Taman Nasional yang notabene adalah kawasan perlindungan, masyarakat dipaksa untuk menjauh dan tidak lagi bersahabat. Perlindungan hutan bukan lagi menjadi tanggung jawab mereka tetapi menjadi tanggung jawab pihak lain, sehingga persahabatan itupun berubah, yang dulunya saling memberi manfaat kini menjadi saling merugikan, hal inilah yang bisa menjadi pemicu konflik antara masyarakat dan Taman Nasional Lore Lindu.

Kesadaran tentang pentingnya pelestarian sebenarnya sudah mengakar di masyarakat sejak dahulu dengan adanya daerah-daerah yang tidak boleh dijamah sama sekali (Tobu), dan kebiasaan masyarakat untuk menanam beberapa jenis tanaman apabila pergi ke hutan, serta pengambilan hasil hutan dengan rotasi. Perkampungan tua (powanuanga) yang terletak di atas bukit yang dibuktikan dengan adanya kuburan tua, Bambu batu (yang hanya ada di perkampungan, bukan tanaman asli hutan), situs budaya lumpang batu, bekas pengembalaan kerbau, benteng bambu dan kebun damar juga merupakan bukti bahwa mereka dapat menjaga lingkungannya dengan baik. Adanya pemasangan pal batas yang tanpa sepengetahuan masyarakat menyebabkan mereka kehilangan kontak dengan leluhur dalam arti bahwa semua peninggalan yang masuk dalam Taman Nasional seolah-olah bukan lagi menjadi bagian dari kehidupan masyarakat.

Keinginan masyarakat untuk menjaga kelestarian keanekaragaman hayati TNLL dari kerusakan sekaligus memanfaatkan Sumber daya alam yang ada terbentur dengan aturan aturan yang menurut mereka sepihak dan tidak menguntungkan siapa – siapa karena ternyata lemahnya penegakan hukum yang diterapkan semakin memperparah kerusakan TNLL, perambahan hutan dan pembukaan lahan baru terus berlangsung tanpa menemui hambatan yang berarti, pertambahan penduduk akibat kelahiran dan migrasi yang terus meningkat

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signifikan dengan peningkatan kebutuhan masyarakat akan lahan dan kebutuhan ekonomi, sehingga apabila kondisi ini terus berlangsung akan menjadi faktor penyebab degradasi pada TNLL.

Hal ini sebenarnya bisa berubah dari masalah ancaman menjadi potensi bagi pelestarian TNLL apabila ada pengelolaan yang seimbang, karena wilayah Wuasa memiliki sumber daya alam yang dapat dikembangkan secara lestari tanpa merubah fungsi kawasan, antara lain dengan menjadikan lahan datar di zona pemanfaatan menjadi lebih bernilai untuk perbaikan kondisi keanekaragaman hayati, potensi tanaman pangan, ekowisata dan agrowisata.

1.2 Gambaran Umum Desa/Wanua Wuasa

Masyarakat hukum adat Wanua Wuasa tinggal di lembah Pekurehua Napu, merupakan salah satu rumpun keluarga besar yang hidup dalam satu ikatan adat yang masih kuat. Sejak berdirinya perkampungan yang dinamakan Wanua atau Boea, Wuasa sudah mengalami beberapa bentuk pemerintahan, dari bentuk kerajaan kerajaan kecil masih dengan nama Wanua atau Boea, lalu zaman Kolonial dinamakan Kampung dan masa pemerintahan orde Baru diganti menjadi desa Wuasa hingga saat ini. Walaupun mengalami berbagai perubahan pada dasarnya masyarakat adat Wanua Wuasa adalah masyarakat yang tetap berdiri pada nilai-nilai luhur yang dianut dengan lembaga adat dan hukum adat yang masih berfungsi dengan baik hingga saat ini.

Luas desa Wuasa adalah 2838 hektare, jumlah penduduk 2318 jiwa terdiri atas 1136 laki – laki dan 1182 perempuan (sensus tahun 2000), dengan mata pencaharian utama penduduk adalah bertani sawah , palawija, dan sayur – sayuran, wuasa juga terkenal dengan kopi dan jeruk manis. Mata pencaharian lainnya yaitu berdagang, beternak, usaha kecil, guru dan pegawai negeri. Desa Wuasa juga merupakan ibukota Kecamatan Lore Utara.

Desa Wuasa terletak di ketinggian 1200 dari permukaan laut dengan bentuk topografi dataran dan perbukitan / pegunungan. Adapun batas – batas Desa wuasa adalah :

- Sebelah Utara berbatasan dengan desa Watumaeta
- Sebelah selatan berbatasan dengan desa Kaduwaa
- Sebelah Timur berbatasan dengan desa Alitupu
- Sebelah Barat berbatasan dengan Taman Nasional Lore Lindu

Sebagai desa yang berbatasan langsung dengan wilayah Taman Nasional Lore Lindu interaksi antara Masyarakat dengan TNLL sampai saat ini cukup besar, antara lain untuk memenuhi berbagai kebutuhan ramuan rumah, rotan, tumbuhan obat, enau, lahan perkebunan dan lain-lain.

Akan tetapi, ketidak sesuaian pengelolaan sumberdaya kawasan menyebabkan berbagai akibat kerusakan hutan yang sudah dirasakan oleh masyarakat seperti erosi dan banjir yang berdampak pada pendangkalan sungai dan kerusakkan areal persawahan dan perkebunan rakyat, yang pada akhirnya akan memiskinkan masyarakat itu sendiri. Oleh karena itu, dengan berlandaskan pada hasil Kesepakatan Konservasi Masyarakat yang mendapat pengakuan dari Balai TNLL, perlu dibuat Rencana Pengelolaan Partisipatif bagi pengelolaan sumberdaya alam dan sumberdaya lainnya yang berada di dalam wilayah kesepakatan di dalam kawasan TNLL.

II. USULAN RENCANA PENGELOLAAN PARTISIPATIF

2.1 Sumberdaya Kawasan

Adapun sumberdaya kawasan yang dipandang penting bagi masyarakat desa Wuasa untuk dibuatkan rencana pengelolaannya bersama Balai TNLL adalah sebagai berikut:

1. Lahan Perkebunan dalam kawasan yang sudah diolah oleh masyarakat.
2. Lahan datar dalam kawasan di zona pemanfaatan tradisional yang diusulkan untuk diolah dengan pola wanatani yaitu cara pengelolaan tanaman pangan dan pepohonan secara terpadu dalam hal ini khusus untuk tanaman jangka panjang.
3. Hasil hutan berupa kayu dan nonkayu (getah dan biji- bijian, rotan, damar, enau, bambu dan obat tradisional).
4. Air
5. Situs Budaya
6. Galian c (batu dan pasir)
7. Hewan Buruan
8. Aktifitas dari pihak lain.

2.2 Pelaksanaan

2.2.1 Hak Masyarakat

A. Untuk lahan yang sudah terlanjur diolah untuk perkebunan seluas kurang lebih 60 ha para pengolah dapat tetap memelihara dan mengambil hasilnya hingga batas waktu yang ditentukan (6 bulan) dan kemudian mengganti tanaman jangka pendek dan menengah dengan tanaman jangka panjang sebagaimana yang diusulkan dalam kesepakatan ini. Bagi masyarakat yang

memiliki lahan dalam TNLL melebihi aturan yang disepakati yaitu 0,5 ha maka kelebihan lahan tersebut harus diserahkan kepada lembaga yang mengatur untuk dikelola oleh anggota masyarakat yang lain.

Tata cara yang digunakan adalah ;
- Mendaftarkan diri kepada lembaga yang ditunjuk
- Penggunaan hak diatur melalui kelompok Wanatani yang ditetapkan oleh Pemerintah desa, lembaga adat, dan BPD. Lembaga yang mengatur juga berhak menentukan tim pengawas dan Pola pengawasan.
- Pemberian hak akan dilakukan berdasarkan azas pemerataan/keadilan yaitu 0,5 ha/KK.
- Pengelolaan Lahan termasuk pembibitan , penanaman, pemeliharaan dan jenis tanaman diatur dalam ketentuan
- Jangka waktu yang diberikan untuk tanaman Jangka pendek adalah 6 bulan sejak kesepakatan ditetapkan.

B. Tanah adat sebagaimana yang diplot didalam peta seluas 250 ha , merupakan lahan yang dipersiapkan untuk budidaya tanaman produktif kehutanan dengan pola tanam Wanatani dari jenis tanaman asli yang ketentuannya diatur selanjutnya dalam kesepakatan ini.

Tata cara yang digunakan adalah :
- Mendaftarkan diri pada lembaga yang ditunjuk
- Pemberian hak dilakukan berdasarkan azas pemerataan yaitu 0,5 ha / KK
- Penggunaan hak diatur melalui kelompok wanatani yang ditetapkan oleh pemerintah desa, Lembaga adat, dan BPD demikian juga dengan pengawasan dan pola pengawasan di atur oleh lembaga tersebut.
- Pemberian hak diprioritaskan pada yang tidak memiliki lahan.
- Pengelolaan Lahan termasuk pembibitan , penanaman, pemeliharaan dan jenis tanaman diatur dalam ketentuan.

Ketentuan yang berlaku untuk point A & B adalah sbb :
- Hak yang diberikan adalah hak guna lahan bukan hak pemilikan. Untuk itu tidak diperkenankan untuk dipersewakan dan diperjual belikan.
- Tidak diperkenankan memperluas lahan, luas lahan ditentukan berdasarkan hasil musyawarah dan mufakat yaitu seluas 0,5 ha.
- Lokasi lahan ditentukan oleh pengurus dengan pertimbangan yang benar, hanya diperkenankan pada tanah yang datar.
- Jenis tanaman yang boleh ditanam adalah tanaman kehutanan (jangka panjang) yang ditentukan antara lain : Kemiri, Leda, Rotan, Damar, Pepolo, uru, cempaka, alpokat, kayu manis, sukun
- Tidak menghilangkan tapal batas yang disepakati.
- Tidak melakukan penebangan disekitar sumber mata air , sungai , anak sungai dan diareal kemiringan, jurang dan tebing sebagaimana ditentukan

dalam keputusan Menteri Kehutanan No 353/Kpts-II/1986 jo Kepres No 32 Thn.1986.

- Mematuhi peraturan desa tentang pelestarian lingkungan.
- Pembersihan lahan dilakukan seminimal mungkin sesuai syarat tumbuh.
- Menandatangani perjanjian akan memenuhi semua ketentuan yang ditetapkan.
- Tidak menimbulkan kerusakan tanah, Erosi, Menurunkan kesuburan tanah, kebakaran hutan , mengganggu fungsi hidrologi dan membuat jalan eksploitasi.

C. Memungut hasil hutan berupa kayu, Rotan, Damar, obat tradisional, enau, dan bambu untuk kepentingan domestik (rumah tangga) , kepentingan Pembangunan Desa dan untuk pengembangan ketrampilan dan pengetahuan. Dengan ketentuan yang diatur dalam dalam kesepakatan ini.

Untuk point C sampai point G Tata cara yang digunakan adalah :

- Mengajukan permohonan kepada pemerintah desa , Lembaga adat, dan petugas yang berwenang.
- Dilakukan peninjauan oleh pihak yang berwenang.
- Pemberian izin oleh pihak yang berwenang.

Ketentuan yang berlaku adalah sbb :

- Kegiatan hanya berlaku pada wilayah yang disepakati (peta terlampir)
- Pengambilan dan pemungutan hasil hutan secara tradisional ,tidak diperkenankan menggunakan alat – alat berat dan dilakukan dengan cara yang benar sehingga tidak merusak ataupun mengganggu lingkungan sekitarnya.
- Untuk Damar hanya boleh mengambil biji dan getahnya, tidak untuk menebang pohonnya.
- Untuk kayu bahan bangunan hanya boleh diambil sesuai tatacara dan hanya untuk dipakai sendiri atau untuk pembangunan fasilitas desa, tidak untuk diperjualbelikan, ukuran yang diijinkan adalah > 80 cm, dengan volume yang ditentukan.
- Rotan khusus digunakan untuk konsumsi sendiri (lokal), antara lain pengikat, bahan kerajinan, alat rumah tangga .
- Tidak melakukan kegiatan tersebut di daerah kemiringan > 30° dan < 100 m dari sumber air dan daerah aliran sungai (Keputusan Menteri Kehutanan No 353/Kpts-II/1986 jo Kepres No 32 1986).

D. Memanfaatkan Sumberdaya Air untuk konsumsi rumah tangga, Pengairan, Wisata ataupun untuk pembangkit listrik skala kecil, seperti yang diatur dengan ketentuan dalam kesepakatan ini.

Ketentuan yang berlaku adalah sbb:

- Pemanfaatan Air tidak mengganggu dan merusak sumber air dan Daerah aliran sungai.
- Tidak melakukan pencemaran pada aliran air , membuang kotoran dan sampah, mencuci alat – alat yang mengandung racun dan pestisida.

E. Mengadakan kegiatan yang bertujuan untuk melindungi situs budaya termasuk untuk tujuan pariwisata dan penelitian.

Ketentuan yang berlaku adalah sbb :

- Tidak mengganggu dan merusak situs budaya yang ada.
- Tidak mengganggu lingkungan sekitarnya
- Tidak merubah posisi ataupun memindahkan letak dari situs budaya.
- Mengambil sesuatu dari lokasi tersebut.

F. Memanfaatkan galian c yang ada disepanjang aliran sungai untuk keperluan pembangunan rumah dan fasilitas desa sesuai ketentuan yang disepakati.

Ketentuan – ketentuan sbb :

- Memenuhi ketentuan administrasi yang ditetapkan desa
- Pengambilan bahan galian dengan cara yang benar sehingga tidak merusak Daerah aliran sungai.
- Pengambilan tidak melebihi daya dukung yang tersedia.
- Hanya dilakukan di areal yang ditunjuk oleh desa.

G. Melakukan kegiatan untuk perlindungan Hewan yang ada di TNLL baik yang ada di darat, di air dan di udara, seperti kegiatan , penangkaran, penelitian dan obyek wisata.

Ketentuan - ketentuan sbb:

- Memenuhi syarat Administrasi yang ditentukan oleh pemerintah terutama Dinas Kehutanan.
- Tidak mengganggu habitat dan keberadaan hewan – hewan tersebut.
- Untuk penangkapan ikan tidak menggunakan alat alat yang dapat memusnahkan keberadaan ikan yaitu dengan stoom, potas atau bahan beracun lainnya.
- Memenuhi Undang – undang yang berlaku.

H. Mengetahui semua aktifitas pihak luar yang dilakukan di desa dan TNLL dan mendapatkan Kontribusi yang sesuai dengan kegiatan tersebut bisa berupa Pengetahuan, barang , uang dll.

Tatacara yang digunakan adalah :

- Setiap kegiatan yang dilakukan oleh pihak luar didalam desa wajib melaporkan kepada pemerintah desa, menunjukkan identitas diri dan menyatakan maksud dan tujuan kedatangan.
- Masyarakat yang mengetahui pendatang yang tidak melapor harap memberitahukan kepada pemerintah desa.

Ketentuan - ketentuan sbb :

- Dilakukan sesuai prosedur, sopan santun, tanpa kekerasan.
- Keputusan diambil dengan pertimbangan yang jelas demi kemaslahatan orang banyak.

2.2.2 Kewajiban Masyarakat

Secara umum kewajiban masyarakat adalah menjaga dan mengamankan kawasan TNLL dari gangguan manusia dan ternak untuk Keberlanjutan fungsi Keanekaragaman hayati Taman Nasional Lore Lindu . Secara khusus kewajiban masyarakat adalah :

A. Melakukan himbauan ataupun penyuluhan tentang pentingnya pelestarian kepada sesama masyarakat dan pihak lain.
B. Mengawasi jalannya kesepakatan
C. Memasyarakatkan hasil kesepakatan kepada masyarakat.
D. Mengganti tanaman yang diambil dengan perbandingan tebang : tanam adalah 1 : 10, dan dipelihara sampai tanaman tumbuh dengan baik.
E. Mematuhi Perdes No 2 / 2001 tentang Retribusi.
F. Memelihara tegakan atau pepohonan di dalam areal TNLL.
G. Memelihara dan melindungi Daerah sepanjang aliran sungai.
H. Melindungi habitat Hewan dan tumbuhan.
I. Memelihara dan melindungi Situs Budaya.
J. Turut aktif dalam usaha pencegahan kegiatan perambahan, kebakaran hutan, erosi dan gangguan lainnya.
K. Tidak memindahkan hak yang diberikan kepada pihak lain.
L. Mentaati semua ketentuan yang ditetapkan oleh pemerintah dan perundang - undangan yang berlaku.

2.2.3 Hak Balai Taman Nasional Lore Lindu

A. Melakukan Pemantauan, Pengawasan dan Evaluasi bersama Pemerintah desa dan masyarakat atas pelaksanaan Kesepakatan
B. Ikut serta dalam Penyusunan dan penetapan aturan, Pedoman, dan petunjuk teknis Pelaksanaan.
C. Meninjau kembali Pelaksanaan kesepakatan Konservasi Masyarakat berdasarkan hasil evaluasi bersama.

D. Turut dalam proses Peradilan hukum baik hukum adat maupun hukum yang ditetapkan oleh negara dan Undang -undang.

2.2.4 Kewajiban Balai Taman Nasional Lore Lindu

A. Melakukan pendidikan dan penyadaran Tentang pelestarian sumber daya alam kepada masyarakat
B. Memberikan bantuan dan fasilitas yang dibutuhkan masyarakat sesuai Kebutuhan dan Program.
C. Memasyarakatkan Aturan dan perundang undangan yang berlaku kepada masyarakat terutama yang berhubungan dengan masalah lingkungan dan keberadaan TNLL.
D. Menetapkan Pal Batas TNLL bersama – sama dengan masyarakat.

2.3 SANKSI – SANKSI

1. Untuk uraian 2.2.1 bagian A dan B; Apabila tidak memenuhi aturan ketentuan – ketentuan yang sudah disepakati, dan tidak melakukan kewajibannya maka yang bersangkutan dikenakan sangsi yaitu dicabut hak pengelolaannya.
2. Untuk uraian 2.2.1 bagian C sampai H; Apabila tidak mematuhi atau melanggar ketentuan dan kewajiban yang disepakati dikenakan sanksi melalui Peradilan Lembaga Adat dengan mengacu pada Peraturan yang ditetapkan oleh Lembaga Adat, BPD dan Pemerintah desa. Dan apabila tidak dapat diselesaikan melalui Peradilan Lembaga Adat, maka proses dapat diteruskan kepada pihak yang berwenang (BTNLL & Kepolisian), dimana Lembaga Adat berkewajiban membantu dan memantau proses penyelesaian perkara dimaksud.
3. Apabila didalam monitoring dan Evaluasi ditemukan hal- hal yang melanggar kesepakatan dan/atau menyimpang dari tujuan kesepakatan maka pihak pemerintah, dalam hal ini BTNLL dapat mengajukan sanksi peninjauan kembali kesepakatan ini.

2.4 MONITORING DAN EVALUASI

Demi kelancaran pelaksanaan kesepakatan ini maka perlu kegiatan Monitoring dan Evaluasi Yang dilakukan secara berkala. Dengan tujuan untuk menilai perkembangan pelaksanaan kesepakatan, mengukur tingkat keberhasilan, memperbaiki sistem atau hal – hal yang kurang efesien, ataupun meninjau kembali pelaksanan kesepakatan. Pelaksanaan kegiatan ini adalah sebagai berikut :

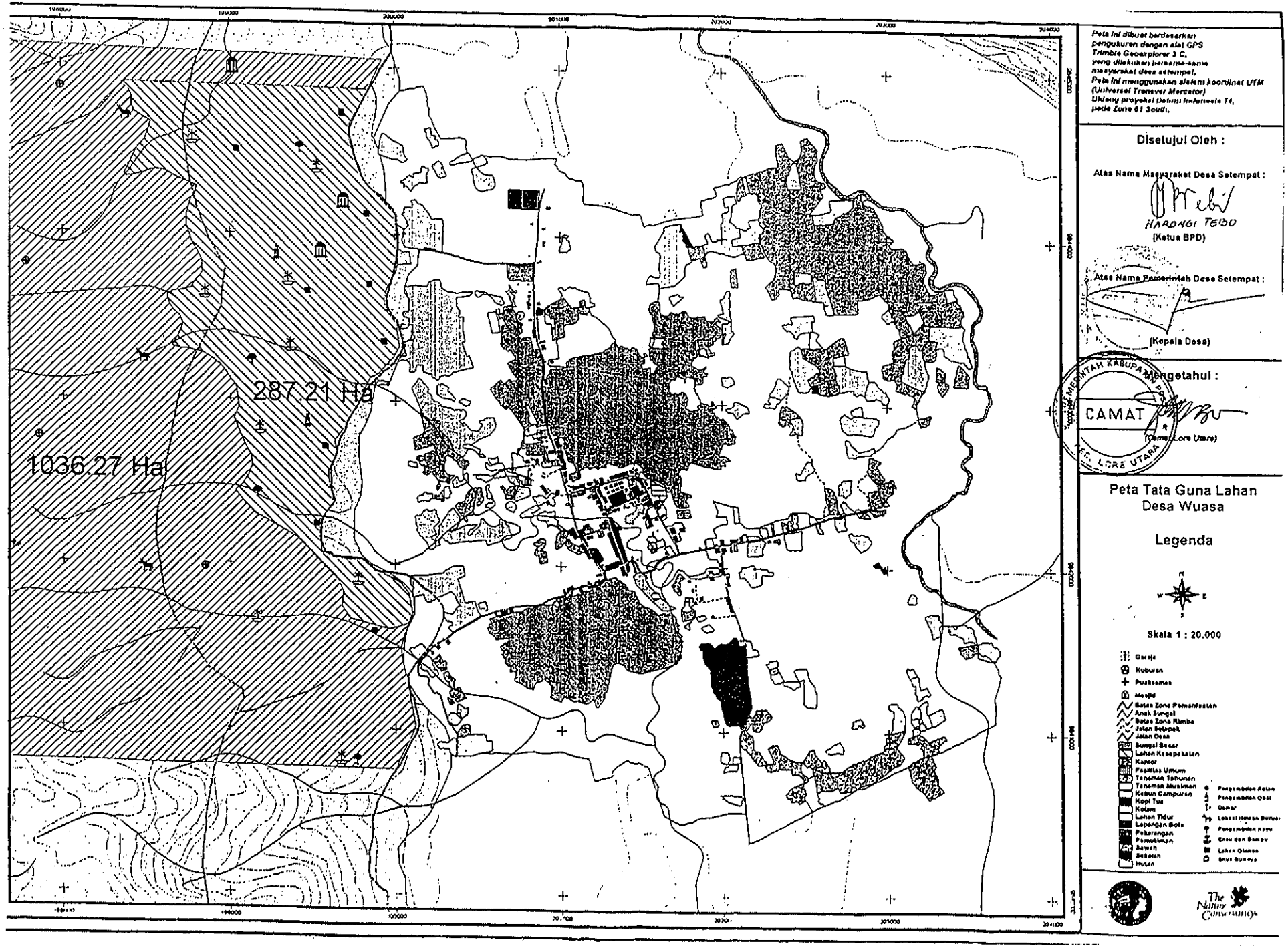
Tim monitoring terdiri atas unsur unsur :
1. Pemerintah desa
2. Badan Perwakilan Desa
3. Lembaga Adat
4. Aparat Dinas Kehutanan dan Perkebunan Dalam hal ini Balai Taman Nasional Lore Lindu.

Sistem monitoring yang akan dilakukan adalah :
1. Survey langsung ke lapangan
2. Melakukan wawancara
3. Pengisian angket atau formulir yang disususun bersama
4. Menganalisa data
5. Menindaklanjuti

Jangka waktu pelaksanaan monitoring adalah :
1. Monitoring awal dilakukan setelah Kesepakatan ini diberlakukan.
2. Monitoring selanjutnya secara rutin dilakukan minimal sekali dalam setahun.
3. Evaluasi untuk peninjauan dilakukan setiap 3 tahun.

Indikator Keberhasilan pelaksanaan kesepakatan adalah :
1. Perbaikan kondisi keanekaragaman hayati di Taman nasional Lore Lindu.
2. Berkurangnya jumlah pelanggaran di dalam kawasan TNLL.
3. Kesejahteraan masyarakat lebih terjamin
4. Kesepakatan berjalan sesuai dengan yang direncanakan.
5. Beberapa tujuan kesepakatan tercapai.

Wanua Wuasa , Nopember 2001



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APPENDIX XI

List of Publications and distribution status

PUBLICATIONS AND DISTRIBUTION STATUS

Title	Date	Author	Distribution status
A checklist of the Birds of Lore Lindu National Park	November 1999	Maadika, Nur Mallo	BTNLL, Tourism, related agencies
Allo Allo comic book Vol. I	January 2000	Workshop	to 275 schools
Sermon Sheets - Christian and Moslem (Indonesian)	March 2000	Workshop	to 41 churches, 37 mosques
Macaque Survey	June 2000	Yayasan Katopasa/Riley	Published
Allo poster	December 2000	TNC	Distributed
Site Conservation Planning, A revised methodology for community participation	June 2001	TNC	for comments, under revision
Survey of the status of Maleo in Lore Lindu (Indonesian)	July 2001	Yayasan Jambata/TNC	by Jambata
Megalith Survey (Indonesian)	June 2001	Yayasan Katopasa/TNC	Published
Distribution and biodiversity of birds at LLNP	September 2001	Raharjaningtrah/TNC/Birdlife	input to 25 Year Management Plan
Demographic Study of communities around Lore Lindu National Park (Indonesian)	September 2001	Yayasan Kayu Riva/TNC	Published
Maleo poster	September 2001	TNC	Distributed
Large Mammal Distribution and Abundance in TN Lore Lindu	October 2001	Burton/TNC	input to 25 Year Management Plan
Distribution and biodiversity of small mammals at LLNP	October 2001	Yani/Maryanto/TNC	input to 25 Year Management Plan
Survey of Vegetation types in LLNP	October 2001	Cannon/TNC	input to 25 Year Management Plan
Guidebook to Lore Lindu National Park (English and Indonesian)	October 2001	TNC	Published
Allo Allo comic book, Vol. II	October 2001	TNC	Published, distribution pending
Study of the Water Catchments of Lore Lindu (Indonesian)	November 2001	Widjajanto/TNC	Published
Study of Soil Erosion at Lore Lindu (Indonesian)	November 2001	Thaha/TNC	Published
Location Of Community Damar Trees In Lore Utara (Indonesian)	November 2001	FKTNLL/TNC	GIS database
Study Of Sawmills Operating In Palu (Indonesian, translation available)	December 2001	FKTNLL/TNC	Published
Water resources of Lore Lindu (poster)	December 2001	TNC	pending campaign activities
Lessons Learned from Building Conservation Capacity and Partnershipsat Lore Lindu National Park	January 2002	TNC	Limited distribution
Water Resources of Lore Lindu National Park	January 2002	Deschamps (ESG)/TNC	Published
Pendidikan dan Penyadaran Konservasi & Hasil Pelaksanaan Survey Persepsi II tentang TN Lore Lindu	January 2002	TNC	Pending
Monitoring Sumber Daya Alam Desa sekitar Taman Nasional Lore Lindu	January 2002	TNC	Pending
Laporan Hasil Kegiatan Pemetaan Tata Guna Lahan di 13 Desa di sekitar Kawasan Taman Nasional Lore Lindu	January 2002	TNC	Pending
Kesepakatan Konservasi Masyarakat di 5 Desa sekitar TN Lore Lindu, Sulawesi Tengah	February 2002	Khairuddin/TNC	Published
The Guide to the Flora of Lore Lindu National Park (Indonesian)		Wirladinata/Suharjono/TNC	Draft

APPENDIX XII

Equipment Distribution

EQUIPMENT DISTRIBUTIONLIST - NRM2 PURCHASES
TNC LORE LINDU FIELD OFFICE

AWAM GREEN

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	GPS	1 BH	Garmin 12/12 C	Good	NRM 2	Jkt,2000
2	Jamtangan/Altimer Digital	1 BH	Casio	Good	NRM 2	Jkt,2000
3	Loop	1 bh		Good	NRM 2	Jkt,2000
4	UPS 500 Watt	1 bh	Upsilon	good	NRM 2	Palu, 1999
5	Binokuler	1 bh	Nikon (8 x 40 65 Waterproof)	Good	NRM 2	Jkt,2000
6	Matras	3 BH		good	NRM 2	Palu, 2000
7	Mantel	1 BH		good	NRM 2	Palu, 2000
8	Terpal	2 BH		good	NRM 2	Palu, 2000
9	Pelampung BOLA	1 set		good	NRM 2	Palu, 2000
10	Waterpas	1 bh		good	NRM 2	Palu, 2000
11	Kotak speciment	3 BH		good	NRM 2	Palu, 2000
12	Toples sampel	3 BH		good	NRM 2	Palu, 2000
13	Meja	1 BH		good	NRM 2	Palu, 2000
14	Kompor M. Tanah	1 BH		good	NRM 2	Palu, 2000
15	Lampu bakar	2 BH		good	NRM 2	Palu, 2000
16	Jaring ikan	1 bh		good	NRM 2	Palu, 2000
17	Kaustangan karet	3 BH		good	NRM 2	Palu, 2000

BKKPA

1	Matras	4 BH		good	NRM 2	Palu, 2000
2	Sliping Bag	2 BH		good	NRM 2	Palu, 2000
3	Mantel	1 BH		good	NRM 2	Palu, 2000
4	Antena Higen	1 bh		good	NRM 2	Palu, 2000
5	Air Matras	1 bh		good	NRM 2	Palu, 2000
6	Timbangan skala	1 bh		good	NRM 2	Palu, 2000
7	Kotak speciment	3 BH		good	NRM 2	Palu, 2000
8	Toples sampel	4 BH		good	NRM 2	Palu, 2000
9	Sarung tangan karet	1 bh		good	NRM 2	Palu, 2000
10	Termometer ruang	2 bh		good	NRM 2	Palu, 2000
11	Meja	1 BH		good	NRM 2	Palu, 2000
12	Lemari	1 bh		good	NRM 2	Palu, 2000
13	Kompor M. Tanah	1 BH		good	NRM 2	Palu, 2000
14	Lampu bakar	2 BH		good	NRM 2	Palu, 2000
15	Termos Air	1 bh		good	NRM 2	Palu, 2000
16	Computer	1 set	HP Brio	good	NRM 2	Jkt,2000
17	Printer	1 bh	HP, DeskJet 810 C	good	NRM 2	Palu,2000
18	Kompas	1 bh	Silva	Good	NRM 2	Jkt,2000

EQUIPMENT DISTRIBUTIONLIST - NRM2 PURCHASE
TNC LORE LINDU FIELD OFFICE

BKSDA

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	Kompas	1 bh	Silva	Good	NRM 2	Jkt,2000
2	Kompas Bidik	1 bh		Good	NRM 2	Jkt,2000
3	AC Spilit	1 bh	Toshiba 1 pk	Good	NRM 2	Palu,2000
4	GPS	1 BH	Garmin 12/12 C	Good	NRM 2	Jkt,2000
5	Alti/Barometer	1 bh	Sunoh	Good	NRM 2	Jkt,2000
6	Clinometer	1 bh	Suunto	Good	NRM 2	Jkt,2000
7	GPS	1 bh	Trimble GeoExplorer 3c	new	NRM 2	Jkt,2001
8	GPS antenna	1 BH	GeoExplorer 3c external antenna kit	new	NRM 2	Jkt,2001
9	Laptop	1 bh	IBM Type S/N AA-666KX	New	NRM 2	2001
10	AC Spilit	1 bh	National, 1pk	good	NRM 2	Palu, 1999

BTNLL

No.	Item	Qty	Brand	Condition	B.Center	Year of Purchase
1	AC Split	1 bh	Toshiba, 1 pk	good	NRM 2	Palu, 2000
2	UPS 750 watt	1 unit	ICA CT 682 B	New	NRM 2	
3	Printer	1 bh	HP LaserJet 2200D	New	NRM 2	Jkt,2001
4	Printer	1 bh	HP Deskjet 610 C	good	NRM 2	Palu, 2000
5	Camera+Blits	1 bh	Pentax P30r	Good	NRM 2	Palu,2000
6	Bak Spesimen	5 bh		good	NRM 2	Palu, 2000
7	Gelas Genetika	1 dos		good	NRM 2	Palu, 2000
8	Rak bak speciment	1 bh		good	NRM 2	Palu, 2000
9	Tabung genetika	15 bh		good	NRM 2	Palu, 2000
10	Kaustangan karet	4 BH		good	NRM 2	Palu, 2000
11	GPS	1 BH	Garmin 12/12 CX	Good	NRM 2	Jkt,2001
12	Meja Komputer	1 unit		good	NRM 2	Palu,2000
13	Lemari Kecil	1 unit	lokal	good	NRM 2	Palu, 2000
14	Kursi Putar	1 unit	Chitose	good	NRM 2	Palu, 2000
15	CD Writer	1 unit	HP	good	NRM 2	Palu, 2000

CELEBES BIRD CLUB

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	Kompas	2 bh	Silva	Good	NRM 2	Jkt,2000
2	Binokuler	1 bh	Nikon Action (Lookoat IV)	Good	NRM 2	Jkt,2000
3	Binokuler	1 bh	Nikon	Good	NRM 2	Jkt,2000
4	Head lamp	2 BH		good	NRM 2	Jkt, 2000
5	Mantel	1 BH		good	NRM 2	Palu, 2000

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EQUIPMENT DISTRIBUTIONLIST - NRM2 PURCHASES
TNC LORE LINDU FIELD OFFICE

JAMBATA

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	GPS	1 BH	Garmin 12/12 C	Good	NRM 2	Jkt,2000
2	Jamtangan/Altimer Digital	1 BH	Casio	Good	NRM 2	Jkt,2000
3	Matras	3 BH		good	NRM 2	Palu, 2000
4	Timbangan	1 bh		good	NRM 2	Palu, 2000
5	Kotak speciment	3 BH		good	NRM 2	Palu, 2000
6	Toples sampel	3 BH		good	NRM 2	Palu, 2000
7	Tali nilon	1 KTNG		good	NRM 2	Palu, 2000
8	Kaustangan karet	3 BH		good	NRM 2	Palu, 2000
9	Kendaraan Roda 2	1 unit	Merek: HONDA WIN	Good	NRM 2	Palu, 2000
			Model: MCB			
			Type: S.Motor			
			Slinder: 100 cc			
			Thn.Perakitan : 2000			
			No.Rangka: MH1HABA11YK-052122			
			No.Mesin: HABAE-1052136			
			Bahan Bakar : Bensin			
			Warna : Hitam			
			No.Plat : DN. 5286 AF			

KATOPASA

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	GPS	1 BH	Garmin 12/12 C	Good	NRM 2	Jkt,2000
2	Jamtangan/Altimer Digital	1 BH	Casio	Good	NRM 2	Jkt,2000

KAYU RIVA

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	GPS	1 BH	Garmin 12/12 CX	Good	NRM 2	Jkt,2001

LPSL

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	Laptop	1 bh	IBM Thinkpad 390E	Good	NRM 2	Jkt

EQUIPMENT DISTRIBUTIONLIST - NRM2 PURCHASES
TNC LORE LINDU FIELD OFFICE

PEKUREHUA

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	Kursi dan meja kerja	1		ex-Wuasa	NRM 2	2000
2	White-board	1		ex-Wuasa	NRM 2	2000
3	Computer+CPU	1 unit	Acer	good	NRM 2	
4	UPS	1unit	ICA CT 682 B	New	NRM 2	Jkt,2001
5	Printer	1 bh	HP Deskjet 695 C	good	NRM 2	Palu, 1999

YAKOBANG

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	GPS	1 unit	Garmin 12/12 C	Good	NRM 2	Jkt,2000
2	Printer	1 unit	HP Laserjet 6 L	good	NRM 2	Jkt 2000
3	Ups 500 watt	1 unit	Upsilon	Good	NRM 2	2001
4	Cumputer	1 unit		Good		
5	Jamtangan/Altimer Digital	1 bh	Casio	Good	NRM 2	Jkt,2000

PALMS

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	Computer	1 set	HP Brio	good	NRM 2	Jkt, 2000
2	UPS	1 bh	ICA CT 682 B	good	NRM 2	Jkt, 2000
3	GPS	1 BH	Garmin 12/12 C	Good	NRM 2	Jkt,2000
4	Jamtangan/Altimer Digital	1 BH	Casio	Good	NRM 2	Jkt,2000
5	Printer	1 bh	HP Laserjet 6 L	good	NRM 2	Jkt,1999
6	Meja	1 BH		good	NRM 2	Palu, 2000
7	Kendaraan Roda 2	1 unit	Merek : HONDA SUPRA Model : NF-100 Type : S.Motor Slinder : 100 cc Thn. Perakitan : 2000 No. Rangka : MH1KEV113YK-076000 No. Mesin : KEVIE-1076024 Bahan Bakar : Bensin Warna : Biru No.Plat : DN. 2355 AH	good	NRM 2	Palu,2000

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EQUIPMENT DISTRIBUTIONLIST - NRM2 PURCHASES
TNC LORE LINDU FIELD OFFICE

FKTNLL

1	Kendaraan Roda 2	1 unit	Merek : HONDA SUPRA Model : NF-100 Type : S.Motor Slinder : 100 cc Thn. Perakitan : 2000 No. Rangka : MH1KEV110YK-039647 No. Mesin : KEVIE-1039995 Bahan Bakar : Bensin Warna : Hitam No.Plat : DN. 3473 AG	New	NRM 2	Palu, 2000

TNC LLFO

No.	Item	Qty	Brand	Discription	B.Center	Year of Purchase
1	Mesin Fotocopies	1 bh	Canon SC 220 S	New	NRM 2	Palu,2001
2	AC Spilit	1 bh	Toshiba	good	NRM 2	Palu,2000
3	LCD	1 unit	Sony	good	NRM 2	Jkt, 2000
4	Vakum Cleaner	1 bh	Maspion	good	NRM 2	Jkt,2000
5	Camera Digital	1 set	Kodak	New	NRM 2	Inggris, 2001
6	Ex. PABX 6 Ext.	1 bh	Panasonic	good	NRM 2	Palu, 2000
7	Pesawat Telefon	5 bh	Panasonic		NRM 2	
8	Mesin Facsimile	1 unit	Panasonic KX. 1010	New	NRM 2	Palu,2001
9	Printer	1 bh	HP LaserJet 2200D	New	NMR 2	Jkt,2001
10	Laptop	1bh	Accer Travelmate 5247	New	NRM 2	Jkt, 2000
11	Brankas	1 bh	Grizzly	good	NRM 2	Palu,2000
12	Printer	1 bh	HP Laserjet 6 L	good	NRM 2	Jkt,2000
13	UPS	1 bh	ICA	good	NRM 2	Jkt,2000
14	AC Split	1 bh	Toshiba, 1 pk	good	NRM 2	Palu,2000
15	Computer	1 set	Compaq	New	NRM 2	Jkt,2001
16	Lemari File besi 2 pintu	1 bh	Brother	good	NRM 2	Palu,2000
17	Lemari Besi 2 pintu	1 bh	Brother	Good	NRM 2	Palu,2000
18	Zip Drive	1 bh	Lomega Zip 100	Good	NRM 2	Jkt,2000
19	Alti/Barometer	1 bh	Sunoh	Good	NRM 2	Jkt,2000
20	Clinometer	1 bh	Suunto	Good	NRM 2	Jkt,2000
21	GPS	1 bh	Trimble GeoExplorer 3c	new	NRM 2	Jkt,2001
22	GPS antenna	1 BH	GeoExplorer 3c external antenna kit	new	NRM 2	Jkt,2001
23	Binokuler	1 bh	Sakure 10 X 24 WA	Good	NRM 2	Jkt,2001
24	Printer	1 bh	HP Deskjet 1000C	good	NRM 2	Jkt, 2000
25	UPS	1 bh	Upsilon 500 W	good	NRM 2	Palu, 2000
26	External Drive	1 bh	Omega Zip 250	good	NRM 2	Jkt, 2000
27	External Hardisk	1 bh	CD : 510 P	good	NRM 2	Jkt, 2000
28	Computer	1 set	Compaq	New	NRM 2	Jkt,2001
29	GPS	2 BH	Garmin 12/12 CX	Good	NRM 2	Jkt,2001
30	Clinometer	1 bh	Suunto	Good	NRM 2	Jkt,2000
31	Printer	1 bh	HP Deskjet 610 C	good	NRM 2	Palu, 2000

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