

Enhanced and Alternative Financing Mechanisms

Strengthening National Park Management in Indonesia

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Technical Paper

Enhanced and Alternative Financing
Mechanisms for Strengthening
National Park Management
in Indonesia

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The Natural Resources Management/EPIQ Program's Protected Areas Management team works with BAPPENAS and the Directorate-General for Nature Protection and Conservation (PKA) of the Department of Forestry and Estate Crops to strengthen protected areas management in Indonesia. Work includes promoting partnerships among the private sector, government agencies, NGOs, and local communities; raising conservation awareness; improving conservation financing; and building institutional and human resources capacity.

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Table of Contents

Acronyms and Abbreviations	iii
Technical Notes on Information Sources and the Use of Terms	v
Executive Summary	vii
<i>Ringkasan Eksekutif (Executive Summary – Bahasa Indonesia)</i>	ix
1. Introduction	1
1.1. Programmatic Context.....	2
1.2. Analytical Focus and Goals of the Study.....	3
2. The State of Indonesia’s National Parks	5
2.1. Institutional Arrangements.....	5
2.1.1. The Protected Areas System and Management Philosophy.....	5
2.1.2. Organizational and Human Resources for Park Management	8
2.1.3. Financial Resources for Park Management.....	13
2.1.4. Legal Basis for Park Financing	16
2.2. Analysis and Implications	16
2.2.1. Financing Implications of the Park System and Management Philosophy.....	18
2.2.2. Financing Implications of Organizational and Human Resources.....	23
2.2.3. Financing Implications of the Budget Component and Process System.....	24
2.2.4. Financing Implications of Legal Arrangements.....	27
3. A New Paradigm for Park Financing	29
3.1. The Effects of Krismon and Reformasi on National Parks.....	29
3.2. The New Paradigm: Incremental Financing.....	31
3.2.1. How Much is a Park Worth – Resource Valuation	32
3.2.2. What Are the Goals of a Park – Opportunities and Threats.....	32
3.2.3. Accrual of Costs and Benefits.....	34
4. Enhanced and Alternative Financing Mechanisms	39
4.1. More Efficient and Cost-Effective Use of Existing Resources.....	39
4.2. Self-Financing through Non-Tax Revenues.....	41
4.3. Partnerships with the Private Sector and Local Communities	43
4.4. Debt-for-Nature Swaps	44
4.5. Carbon Offsets through Joint Implementation.....	45
4.6. Concessions for Park Management, or Quasi-Privatization.....	47
4.7. Conservation Trust Funds	47
5. Implications and Conclusions	49

Statistical Annex : Financial Data from DATANAS 1.0	51
Bibliography	59

Tables and Figures

Table 1 – Terrestrial and Marine National Parks	7
Table 2 – National Park Staffing in 1999.....	11
Table 3 – Planned Budgets for All Parks Combined, March 1993 - April 1999	15
Table 4 – Nominal and Real DepHutBun, PKA, and National Park Budgets, 1994 - 1998..	19
Table 5 – Park Area, Budget, and Staffing by Biogeographic Region	20
Table 6 – Interrogatory for Alternative Financing	31
Table 7 – Incremental Financing Matrix for Selected National Parks	36
Annex Table A – Planned Budgets by Biogeographic Area and Component, 1993 - 1999 ..	52
Annex Table B – Percentage Allocation of Planned Budgets, 1993 - 1999	54
Annex Table C – Allocation of Funds by Activity Area, 1993 - 1999	55
Figure 1 – Organizational Structure for National Park Management	10
Figure 2 – Breakdown of PKA Budgetary Components.....	14
Figure 3 – Budget Process Timeline	16

Acronyms and Abbreviations

APBN	<i>Anggaran Pendapatan dan Belanja Negara</i> (Planned/Actual National Budget)
APBN <i>Rutin</i>	Routine budget
APBN <i>Pembangunan</i>	Development budget
BAPPENAS	<i>Badan Perencanaan Pembangunan Nasional</i> (Ministry for National Planning and Development)
BKSDA	<i>Balai konservasi sumberdaya alam</i> (natural resources conservation office)
BLN.....	<i>Bantuan luar negeri</i> (foreign aid or donor funds)
BTN.....	<i>Balai taman nasional</i> (national park office (echelon III))
DepHutBun.....	<i>Departemen Kehutanan dan Perkebunan</i> (Department of Forestry and Estate Crops)
DIK.....	<i>Daftar isian kegiatan</i> (routine activity budget)
DIP	<i>Daftar isian proyek</i> (project budget)
DPL	<i>Dana pemerintah lainnya</i> (supplemental government funds)
DR	<i>Dana reboisasi</i> (reforestation fund)
EPIQ.....	Environmental Policy and Institutional Strengthening
FY.....	Fiscal year
GOI.....	Government of Indonesia
ICDP.....	Integrated conservation and development project
IHH.....	<i>Iuran hasil hutan</i> (forest concession royalties)
<i>Jagawana</i>	Ranger
<i>Kabupaten</i>	Governmental administrative region below a province
KanWil	<i>Kantor wilayah</i> (Regional forestry office)
KEPRES	<i>Keputusan president</i> (presidential decree)
NGO	Non-government organization
NRM.....	Natural Resources Management Program
PKA.....	<i>Dirjen Perlindungan dan Konservasi Alam</i> (Directorate General of Nature Protection and Conservation)
PP	<i>Peraturan pemerintah</i> (government regulation)
SKM	<i>Surat keputusan menteri</i> (ministerial decree)
UPT	<i>Unit pelaksanaan teknis</i> (national park technical management unit)
USAID.....	United States Agency for International Development
UTN.....	<i>Unit taman nasional</i> (national park unit (echelon IV))
UU	<i>Undang undang</i> (basic law or act)
UUD	<i>Undang Undang Dasar</i> (the Constitution of Indonesia)

Technical Notes on Information Sources and the Use of Terms

1. The Indonesian fiscal year begins on April 1 and ends the following March 31. For this reason, when referring to budgets in the Indonesian writing style, fiscal years are named with both calendar years. For example, the fiscal year which began on April 1, 1997 and ended on March 30, 1998 is typically called “FY 1997/1998” or “FY 97/98.” The convention in this paper is to simplify this reference by using the term 1997. The text is more specific if it is unclear whether the reference is to calendar or fiscal years.
2. The highest line agency for the management of forest resources in Indonesia is the *Departement Kehutanan dan Perkebunan*. The convention in this paper is to refer to this agency as the Department of Forestry and Estate Crops, or by its Indonesian acronym of DepHutBun. We use the term “department” to distinguish this as a technical agency, as opposed to “ministry” which is a coordinating agency. (For example, BAPPENAS, Environment, and Finance are Ministries.)
3. Name changes: until 1998, the PKA was known as the PHPA. PKA and PHPA are interchangeable terms in this document. Similarly, prior to 1997, DepHutBun was simply DepHut (the Department of Forestry). DepHutBun and DepHut are interchangeable terms in this document as well. Lastly, in the summer of 1999, the pool of forest concession royalties (*iuran hasil hutan*, or IHH) was renamed the “forest provision fund” (*provisi sumberdaya hutan*, or PSDH). While PSDH might be the more proper name, this paper uses the older, more recognized IHH terminology.
4. The Lesser Sundas are a biogeographic region containing the provinces of Nusa Tenggara Barat, Nusa Tenggara Timur, and East Timor. This area consists of the main islands of Lombok, Komodo, Sumbawa, Flores, Timor, and Sumba and hundreds of smaller surrounding islands.
5. In this paper, Indonesia’s formal National Parks are referred to as “parks,” or collectively as the “park system.” The larger system of land designated for some form of conservation activity, which includes parks, is referred to as the “protect areas system.” Indonesia follows IUCN conventions in its designation of protected area types: game reserve, forest park, national park, natural recreation park, strict nature reserve, and wildlife reserve.

6. This paper relies heavily on the output of a new conservation finance database developed by the NRM Program's Protected Areas Management Team in collaboration with PKA. This database, tentatively titled DATANAS (*Datadasar Keuangan Taman Nasional*, or the National Park Finance Database), is programmed in MicroSoft Access 1997. The database consists of 20 tables that each have from 2 - 16 fields. Data is for the years FY 1993/1994 through FY 1998/1999. The data sources are official statistics from PKA, DepHutBun, the *Biro Pusat Statistik*, and in some cases, individual national parks. Presently, DATANAS is a stand-alone system, but its software allows it to be easily uploaded on to the DepHutBun internet site for access by remote users. The analysis drawn from the database in this study can serve as a model for the PKA in the future.

7. Unless otherwise noted, all data, calculations based on data, and data contained in tables is drawn from DATANAS Version 1.0.

8. Readers may see reference to Dumoge Bone National Park of Northern Sulawesi in other sources. This park has been renamed Bogani Nani Wartabone.

9. There are now 39 national parks, the most recent addition being Danau Sentarum in West Kalimantan. Formerly a wildlife reserve, this forest area of approximately 130,000 hectares became a park in mid-1999. The park does not have an exclusive budget or dedicated management unit, and sometimes is not included in the tables in this paper. Nonetheless, the addition of Danau Sentarum, without budget or staff, to the park system, does not change the analytical results presented herein.

Executive Summary

In the spirit of *reformasi* and new laws for decentralization and fiscal autonomy, this paper explores a range of options for enhanced and alternative financing mechanisms for Indonesia's national parks. The analytical approach examines the park management system from the perspective of budgetary allocations for the achievement of conservation goals. While the use of funds may be inefficient, compared to the sheer magnitude of the park system and in light of the present economic crisis, funds are insufficient. Rather than use an input-output method for determining budgetary needs and making management decisions, the alternatives presented here build toward a conservation goal while generating funds based on a system that more equitably assigns costs to those who accrue the benefits of Indonesia's national parks.

The Protected Areas Management Team of the USAID Natural Resources Management/EPIQ Program has prepared this menu of financing mechanisms for its principal partner, the Directorate General of Nature Protection and Conservation (PKA) within the Department of Forestry and Estate Crops (DepHutBun). The PKA is responsible for managing all of the Indonesia's protected areas – some 375 sites covering over 21 million hectares – but the focus here is on the country's 39 national parks. The park system is the largest and most institutionally well-developed component of Indonesia's conservation estate, and it forms the cornerstone of national and international biodiversity conservation efforts.

Chapter One places this study within the context of current events and the programmatic objectives of the NRM Program and PKA. Chapter Two describes the park system, the organizational structure and human resources of DepHutBun and PKA, and the budgetary components and process for funding the parks. The chapter then discusses the implications of these institutional arrangements for achieving the conservation goals of the parks. The chapter shows that the economic crisis has dramatically eroded overall spending on national parks. There is an under-allocation of funds to Indonesia's outer islands and to areas with the highest conservation value, but not necessarily an over-allocation of funds to parks on Java, Sumatra, and Bali.

Chapter Three discusses the economic and political crisis as a turning point in national park management in Indonesia. The chapter describes the practical impacts on the parks, including greater pressure to use natural resources as an engine of economic growth. With

new laws on decentralization (UU 22/1999) and fiscal autonomy (UU 25/1999), now is a particularly appropriate time to consider a new paradigm for the generation and allocation of funds. Namely, funds should be derived from those who gain the benefits of parks; and allocations should be made to the areas of greatest value.

Chapter Four suggests enhanced and alternative financing mechanisms in terms of their applicability to Indonesia's 39 parks. The chapter proposes mechanisms that alleviate some of the funding burden borne by the PKA for the national parks, including self-financing (perhaps by changing the user fee system) or forms of quasi-privatization; partnerships with local communities, the scientific research community, and the private sector; debt-for-nature swaps; and carbon offset programs. The chapter shows that there is no single appropriate financing mechanism; each park may require a different tool according to local opportunities and constraints. The chapter then discusses trusts as an innovation for the decentralized and democratized management and expenditure of funds.

Chapter Five concludes this paper with caveats and implications of enhanced and alternative financing mechanisms. New funds should supplement, not replace, existing Government of Indonesia allocations to conservation. Moreover, these mechanisms require a willingness to devolve some oversight and decision-making authority outside of Jakarta. The mechanisms also entail a commitment to monitoring and evaluation of conservation activities, matching allocation of funds according to success. The implications for the PKA include a park service with experts in management, business administration, environmental economics, and public administration who are prepared to proactively assess and implement enhanced and alternative financing mechanisms.

Ringkasan Eksekutif

Sejalan dengan semangat reformasi dan dengan ditetapkannya Undang-undang baru mengenai desentralisasi dan otonomi fiskal, telah dilakukan suatu studi untuk membahas serangkaian pilihan yang dapat digunakan sebagai alternatif untuk meningkatkan mekanisme pendanaan bagi taman nasional di Indonesia. Pendekatan analitis yang digunakan mengkaji sistem pengelolaan taman nasional dari sisi pengalokasian anggaran dalam usaha mencapai sasaran konservasi. Walaupun memang ada kemungkinan dana digunakan secara tidak efisien, namun bila mengingat betapa pentingnya pengelolaan taman nasional serta krisis ekonomi yang sedang berlangsung, maka dapat dikatakan bahwa dana yang tersedia memang tidak memadai. Bila dibandingkan dengan metode input-output yang dapat digunakan untuk menetapkan anggaran serta membuat keputusan yang berkaitan dengan pengelolaan, pilihan-pilihan yang dikemukakan dalam studi ini lebih mengarah pada tujuan konservasi. Pilihan tersebut juga mampu menghasilkan dana karena mekanismenya didasarkan pada sistem yang membebaskan biaya hanya pada mereka yang benar-benar memperoleh keuntungan dari taman -taman nasional di Indonesia.

Studi mengenai mekanisme pendanaan ini dilakukan oleh Tim Pengelolaan Kawasan Lindung dari USAID Natural Resources Management Program dan hasilnya diserahkan kepada mitra utamanya yaitu Direktorat Jenderal Perlindungan dan Konservasi Alam (PKA), Departemen Kehutanan dan Perkebunan (Dephutbun). PKA bertanggung jawab untuk mengelola kawasan lindung di Indonesia—yang berjumlah kurang lebih 375 situs dengan luas yang mencapai lebih dari 21 juta hektar—namun fokus utama studi ini hanya pada ke-39 taman nasional yang ada di Indonesia. Pengelolaan taman nasional merupakan komponen konservasi Indonesia yang terbesar dan yang secara kelembagaan telah dikembangkan dengan baik. Taman nasional juga menjadi dasar dari berbagai usaha konservasi keanekaragaman hayati dalam skala nasional maupun internasional.

Bab satu menempatkan studi ini dalam konteks kejadian terkini dan tujuan programatik NRM Program dan PKA. Bab dua menjelaskan sistem pengelolaan, struktur organisasi dan sumber daya manusia yang ada di Dephutbun dan PKA, komponen anggaran dan proses pendanaan taman nasional. Kemudian dalam bab ini juga dikemukakan tentang implikasi pengaturan kelembagaan sehubungan dengan pencapaian tujuan konservasi dari taman nasional yang bersangkutan. Bab ini juga menjelaskan bagaimana krisis ekonomi telah secara dramatis mengurangi pendanaan yang disediakan untuk taman-taman nasional yang ada. Memang

dapat dilihat adanya pengurangan alokasi dana untuk kepulauan Indonesia yang lokasinya jauh atau untuk kawasan yang memiliki nilai konservasi tinggi, tetapi ini tidak berarti akan ada penambahan alokasi dana untuk taman-taman nasional yang lokasinya di Pulau Jawa, Sumatera dan Bali.

Bab tiga membahas tentang krisis ekonomi dan politik yang merupakan titik balik dari pengelolaan taman nasional di Indonesia. Bab ini menjelaskan dampak praktis krisis terhadap taman nasional. Termasuk di sini mengenai adanya tekanan yang lebih besar untuk memanfaatkan sumber daya alam sebagai mesin dari pertumbuhan ekonomi. Dengan ditetapkannya UU baru tentang desentralisasi (UU No. 22/1999) dan otonomi fiskal (UU No. 25/1999), maka saat ini merupakan saat yang tepat untuk mempertimbangkan paradigma baru yang dapat digunakan untuk menghasilkan dan mengalokasikan dana. Dengan kata lain, dana seharusnya dapat diperoleh dari mereka yang memperoleh keuntungan dari taman nasional, sedangkan pengalokasian dana harus dilakukan pada kawasan-kawasan yang memiliki nilai-nilai yang sangat berharga.

Bab empat memberi saran tentang mekanisme pendanaan alternatif yang dapat diterapkan pada 39 taman nasional yang terdapat di Indonesia. Bab ini mengusulkan beberapa mekanisme pendanaan yang dapat meringankan beban pendanaan yang ditanggung PKA untuk mengelola taman nasional. Termasuk di sini mekanisme seperti pendanaan yang sifatnya swadaya (mungkin dengan mengganti sistem biaya masuk); bentuk-bentuk semi-swasta; membina kemitraan dengan masyarakat setempat, masyarakat peneliti ilmiah dan sektor swasta; dana untuk konservasi alam (dns); dan program-program *carbon offset*. Bab ini juga menunjukkan bahwa tidak ada mekanisme pendanaan yang secara mutlak berlaku di semua taman nasional. Besar kemungkinan setiap taman nasional membutuhkan mekanisme yang berbeda, karena hal ini sangat bergantung pada kesempatan dan hambatan yang ada di masing-masing taman nasional tersebut. Akhirnya bab ini membahas tentang dana abadi (*trusts*) yang merupakan inovasi dalam pengelolaan yang desentralistis dan demokratis, juga dalam penyaluran dana.

Bab lima merupakan kesimpulan studi yang disajikan dalam bentuk saran dan implikasi dari mekanisme pendanaan alternatif. Dana yang baru diperoleh harus dapat lebih meningkatkan dan bukannya mengganti dana yang telah disediakan pemerintah Indonesia untuk konservasi. Mekanisme ini membutuhkan adanya keikhlasan dalam memberikan wewenang untuk membuat keputusan di luar Jakarta. Mekanisme ini juga menuntut adanya komitmen untuk memantau dan mengevaluasi kegiatan-kegiatan konservasi. Di samping itu alokasi dana juga

harus didasarkan pada keberhasilan yang telah dicapai. Dampaknya bagi PKA adalah bahwa taman nasional mampu menyediakan tenaga-tenaga ahli di bidang manajemen, business administration, ekonomi lingkungan serta administrasi umum yang bersedia untuk secara proaktif menilai dan mengimplementasikan mekanisme pendanaan alternatif yang dapat meningkatkan pendapatan dari taman nasional yang bersangkutan.

1. Introduction

The unprecedented impact of the Indonesian economic crisis on the country's national parks provides a unique opportunity to establish a new basis for long-term funding and more effective management of those parks through enhanced and alternative financing mechanisms. This paper examines Indonesia's national park management system from the perspective of budgetary allocations for the achievement of conservation goals. Prior to the economic crisis that began in late 1997, the system suffered from ineffective implementation and inefficient use of financial resources. Two years later, this study reveals that not only do those problems persist, but the absolute amount of money for conservation may be insufficient as well. Fortunately several alternative mechanisms exist which can improve the generation, allocation, and expenditure of funds.

The present climate of economic, political, and legal uncertainty in Indonesia allows for a pessimistic or optimistic outlook for the promotion of improved national park management. With the unresolved economic crisis leading to decreased government budgets and increased pressure on natural resources, and a transition to a new political administration with as yet unstated policies, the pessimistic view calls for retrenchment in park management activities: either small cuts across the board or elimination of all but priority functions. However, this era of *reformasi* is a time for optimism. There has been a national movement for the more democratic control of financial and natural resources; and, the government has passed two new laws calling for decentralization (UU 22/1999) and local fiscal autonomy (UU 25/1999) which potentially have important ramifications for national parks. Thus, despite constricted budgets for park management, there is the opportunity to conduct all activities more efficiently, and to find new sources of funds.

The Indonesian national park system covers over 14 million hectares of terrestrial and marine area and is one of the most important in the world. The cornerstone of the country's biodiversity conservation efforts, the 39 national parks harbor the largest tropical forests in Asia and more biological diversity than any other country except Brazil. The parks, along with the other reserve types in the country's overall protected areas system, provide uncounted and often essential benefits across a range of stakeholders: Forest and marine products and ecosystem services such as watershed protection at a local level; genetic stock for timber and sustainable fisheries at a national level; and, recreation and existence values at a global level. While a range of stakeholders accrue the benefits of Indonesia's parks, the distribution of costs is far from equal. Alternative finance mechanisms can serve to divide

the costs more equitably, whether the costs are reflected as currency funds or as management responsibilities.

Considering the hurdles facing Indonesia in terms of political change, population growth, and poverty, the people and the Government can be justifiably proud of their park system. The challenge now, however, is to pay for and manage the parks – a challenge that is not being met, by either the Government of Indonesia nor the international community. The parks are under threat from land encroachment, fragmentation, illegal logging, illegal mineral prospecting, and illegal fishing practices, and the intensity of these threats has increased with the economic crisis. The parks suffer from lack of qualified staff, organizational inefficiency, and poor financial management. Moreover, whatever flaws existed two years ago have only been magnified by the economic crisis. System wide, the overall park budget has dropped, in real terms, by 40 percent since October, 1997 and 12 parks have seen their budgets drop by over 64 percent in that time.

1.1. Programmatic Context

Responding to the challenge of national park financing, the USAID Natural Resource Management/EPIQ Program (NRM Program) is working with Indonesia's Directorate General of Nature Protection and Conservation (the *Dirjen Perlindungan dan Konservasi Alam*, or PKA) within the Department of Forestry and Estate Crops (the *Departemen Kehutanan dan Perkebunan*, or DepHutBun). A thematic goal of the NRM Program is to strengthen stakeholder rights and responsibilities for natural resources management. Alternative finance mechanisms are in accord with that goal, for they balance rights – an individual, community, national, or global interest in receiving the benefits of national parks – with responsibilities – the duty to bear the costs of the parks. This is especially relevant today in light of the new opportunities and constraints presented by UU 22/1999 and UU 25/1999.

As the organizational steward of the 39 parks, the PKA faces two very simple and practical questions: how much does it cost to pay for the park system, and from where will the funds come? This paper reinforces earlier work suggesting that the answer to the first question requires reorienting PKA thinking from one of inputs to park management, such as number of staff and construction of park buildings, to one of conservation goals, such as species protection or community appreciation (Merrill, 1999). As to the second question, earlier

work has again well demonstrated that regardless of the cost and regardless of the funding source, more money, in and of itself, is not the answer, for it could decrease PKA's organizational incentive to be efficient (MacAndrews and Saunders, 1997). Thus, this paper posits that new funds – from enhancements to existing mechanisms and from non-traditional alternatives – should reinforce a programmatic objective of cost-effective conservation.

Intellectually, this study looks back to the work of MacAndrews and Saunders (1997) conducted under the USAID Natural Resources Management Project, and looks forward to a current effort by The Nature Conservancy (1999) that outlines conservation funding priorities. The earlier study found:

- a steady increase in the PKA budget from 1993 through 1996;
- the importance to the PKA of supplementary funds from the reforestation fund of DepHutBun (*dana reboisasi*, or DR) and donor assistance;
- a seemingly disproportionate allocation of funds to parks on Java and Sumatra and to the PKA headquarters in Jakarta;
- in comparison to international standards, a relatively high amount of money budgeted per area, and on a park-by-park basis, a relatively low amount of park area per staff;
- smaller parks in Indonesia have high average costs due to a fixed organizational structure established by the PKA.

Based on these findings, MacAndrews and Saunders strongly argued that more effective conservation management in the parks combined with a reallocation of funds within the PKA and DepHutBun systems would sufficiently meet park financing needs. This study reviews those earlier findings, particularly in light of the economic crisis. While the findings hold true and the argument for increased effectiveness is supported, we agree with Porter that the absolute amount of funds is insufficient, and that depending on conservation objectives, more and better staff and equipment are necessary. Porter's paper addresses how to spend these new funds; this paper addresses how to generate the funds.

1.2. Analytical Focus and Goals of the Study

While the NRM Program works with PKA on matters related to all types of protected areas, the authors of this paper have chosen to focus only on the national parks. The national parks

have the most fully developed institutional system within Indonesia's protected area network. The parks represent over two thirds of all protected areas in the country; unlike other protected area types (e.g., strict nature reserves or forest reserves) they usually have distinct management units; and, the parks have a clear mandate to conserve natural ecosystems and biological diversity for all the country's people (BAPPENAS, 1993). Lastly, the international community endorses the conservation objectives of the parks, and the parks are a consistent focus of international technical assistance.

The focus on national parks allows for clear goals for this study within the context of the NRM Program and PKA mandate. Namely:

- Promote an analytical method within the PKA that, rather than relying on a tally of inputs and outputs as the basis for park budgeting, uses conservation management objectives for individual parks and the entire park system to inform a financing strategy.
- Provide to the PKA a menu of financing mechanisms and criteria for selecting them; the parks present a diversity of opportunities, and there is no single correct financing mechanism.
- Demonstrate to the PKA an "incremental financing" approach that determines where benefits and costs of parks are accrued in order to select an enhanced or alternative financing mechanism.

2. The State of Indonesia's National Parks

The paper proposes to analyze the institution of national park management in Indonesia from the perspective of budgetary allocations in order to suggest alternative financing mechanisms that promote more effective conservation management. This chapter starts by simply describing the system – its size, history of development, and organizational, human, and financial resources. We then ask what are the implications of these institutional arrangements for park financing. The results show that particularly in the outer islands of Kalimantan, Sulawesi, Maluku, the Lesser Sundas, and Irian Jaya, there is a serious lack of financial resources.

2.1. Institutional Arrangements

2.1.1. The Protected Areas System and Management Philosophy

Indonesia's protected areas system is impressive for both the resources it protects and for its size and comprehensiveness. The country is one of mega-biological diversity in which can be found ten percent of the world's total plant species, 12 percent of the mammals, 16 percent of the reptiles and amphibians, 17 percent of the bird species, and 25 percent of all marine and freshwater fish species (MacKinnon, et al., 1996). Uncounted millions in the country rely, directly and indirectly, on species and ecosystem diversity for their livelihoods (BAPPENAS, 1993). At the same time, these precious biological resources are under increasing threat; the country is among the top five in the world for threatened mammals and heads the list for threatened birds (IUCN, 1996).

To conserve its natural resources, Indonesia has established the most comprehensive system of protected areas in Southeast Asia. Although the designation of the protected areas occurred opportunistically and without clear ecological objectives (Merrill, 1999), on paper the system is convincing. Including 375 national parks, strict nature reserves, nature recreation parks, wildlife reserves, grand forest parks, and hunting parks, the system covers over 16.5 million hectares of terrestrial area and 4.5 million hectares of marine area (PKA, 1998). The terrestrial protected areas cover 8.5 percent of the country's total land area, close to the national goal of ten percent espoused in the country's formal Biodiversity Action Plan (BAPPENAS, 1993).

The most important portion of Indonesia's conservation estate is the system of 39 terrestrial and marine national parks, covering 10.5 million terrestrial hectares and 3.6 million marine hectares (Table 1). These parks hold the crown jewels of Indonesia's biodiversity, including tigers, elephants, rhinos, orangutans, hornbills, and birds of paradise. Although the current classification system for parks and other protected areas only began in 1980, official reserves in Indonesia date back over one hundred years, and 21 of the parks had some sort of conservation status prior to 1980. The designation of national park mandates the protection of environmental life support systems and the preservation of species diversity, while allowing for the sustainable utilization of living resources and their ecosystems (UUD 5/1990). Thus, only non-destructive human activities are allowed within a park, such as research, recreation, and the collection of non-timber forest products in a sustainable and controlled manner.

However, in almost all cases, the parks suffer from socioeconomic pressures, insufficient management, and a lack of appreciation for their value in the surrounding population. The parks often border population centers, areas of timber and mineral exploitation, and important fisheries. In some cases, park boundaries have significant overlap with land claimed by indigenous and pre-existing communities. One study found 27 parks to be facing serious degradation in part or all of the area. This study also found 23 parks to have a management structure with serious gaps, minimal management and infrastructure, or no management whatsoever (Dudley and Philips, 1999). Moreover, the parks have little local support, for very rarely do school curricula and popular media extol a sense of pride among the communities surrounding national parks, nor do local governments and communities promote an understanding of the value of parks in local economic development.

Over the years, there has been a change in the management philosophy for national parks in Indonesia and around the world. Originally, the approach was one of strict preservation that offered little or no role for local communities or enterprises. This was the approach of not only the PKA, but also of international donors and NGOs, where threats – usually people – were to be excluded. Such an approach was appropriate in Western countries which had lower population and socioeconomic pressures, but it did not work in Indonesia, which had [and has] serious and legitimate needs for land and natural resources for national development. In part, this was due to the funding needs of strict preservation, especially for manpower and equipment to patrol park land and guard borders.

Table 1: Terrestrial and Marine National Parks

Park	Biogeographic Location	Year Gazetted*	Area (hectares) [†]	1998 Budget (\$)	\$/km ² ^{†‡}
Terrestrial Parks (33)					
Gunung Leuser	Northern Sumatra	1980 (1932)	792,675	\$194,590	\$25
Siberut	Western Sumatra	1992	190,500	\$225,784	\$119
Kerinci Seblat	Western Sumatra	1982 (1939)	1,369,000	\$1,962,326	\$143
Bukit Tiga Puluh	Eastern Sumatra	1995	127,698	\$49,459	\$39
Berbak	Eastern Sumatra	1992 (1931)	162,700	\$72,587	\$45
Bukit Barisan Selatan	Southern Sumatra	1982 (1935)	365,000	\$118,748	\$33
Way Kambas	Southern Sumatra	1989 (1937)	130,000	\$212,482	\$163
Ujung Kulon	Western Java	1988 (1919)	122,956	\$181,030	\$147
Halimun	Western Java	1992 (1979)	40,000	\$101,908	\$255
Gunung Gede Pangrango	Western Java	1980 (1919)	15,000	\$175,896	\$1,173
Bomo Tengger Semeru	Eastern Java	1982 (1919)	58,000	\$127,517	\$220
Meru Betiri	Eastern Java	1982 (1972)	58,000	\$83,613	\$144
Alas Purwo	Eastern Java	1992	43,420	\$77,469	\$178
Baluran	Eastern Java	1982 (1937)	25,000	\$161,586	\$646
Bali Barat	Bali	1995 (1974)	19,002	\$128,415	\$676
Gunung Rinjani	Lombok, NTB	1990	40,000	\$75,137	\$188
Komodo	Komodo, NTB	1992 (1965)	173,300	\$166,778	\$96
Kelimutu	Flores, NTT	1992 (1984)	5,000	\$69,750	\$1,395
Laiwangi Wanggameti	Sumba, NTT	1998	47,014	na	na
Manupeu Tanah Daru	Sumba, NTT	1998	87,984	na	na
Gunung Palung	Western Kalimantan	1990 (1936)	90,000	\$60,465	\$67
Danau Sentarum	Western Kalimantan		130,000		
Bentuang Karimun	Central Kalimantan	1995	800,000	\$217,454	\$27
Bukit Baka Bukit Raya	Central Kalimantan	1992 (1979)	181,090	\$111,058	\$61
Tanjung Puting	Southern Kalimantan	1982 (1936)	415,040	\$85,266	\$21
Kayan Mentarang	Eastern Kalimantan	1996	1,360,500	na	na
Kutai	Eastern Kalimantan	1995 (1971)	198,629	\$104,903	\$53
Bogani Nani Wartabone	Northern Sulawesi	1992 (1979)	287,115	\$139,132	\$48
Lore Lindu	Central Sulawesi	1992 (1973)	229,000	\$80,134	\$35
Rawa Aopa Watumohai	Southeastern Sulawesi	1990 (1985)	105,194	\$77,216	\$73
Manusela	Maluku	1982 (1972)	189,000	\$62,096	\$33
Lorentz	Irian Jaya		2,505,600	na	na
Wasur	Southern Irian Jaya	1990 (1978)	308,000	\$74,787	\$24
Subtotal			10,671,417	\$5,197,586	\$49
Marine Parks (6)					
Kepulauan Seribu	Western Java	1982	108,000	\$81,917	\$76
Kepulauan Karimun Jawa	Central Java	1988	111,625	\$60,627	\$54
Bunaken	Northern Sulawesi	1992 (1986)	89,065	\$76,518	\$86
Taka Bonerate	Southern Sulawesi	1992 (1985)	530,765	\$76,019	\$14
Kepulauan Wakatobi	Southeastern Sulawesi	1996	1,390,000	\$89,272	\$6
Teluk Cendrawasih	Irian Jaya	1990	1,453,500	\$71,077	\$5
Subtotal			3,682,955	\$455,430	\$12
TOTAL			14,354,372	\$5,653,016	\$39

(Source: PHPA, 1998)

* The years in parentheses in column 3 represent the time of original gazettement for some form of conservation. The designation of National Park, as currently used in Indonesia, did not exist prior to 1980.

† Units in columns 4 and 6 follow standard convention. One square kilometer is equal to 100 hectares.

†‡ Column 6 answers the question, "How much does it cost to buy one square kilometer of protection?"

Thus, starting in the late 1980s and continuing for the better part of the past decade, the dominant management philosophy changed to the promotion of Integrated Conservation and Development Projects (ICDPs) (Wells, et al, 1997). ICDPs work in parks and surrounding communities; the strategy is to build local support for conservation initiatives by providing community development projects in buffer zones adjacent to protected areas. Successful ICDPs have clear conservation objectives, identify threats, have strong park managers, and allow for active stakeholder participation. The ICDP concept has received strong support from the World Bank, Asian Development Bank, European Union, USAID, and many international donors and NGOs, who have combined to spend \$130 million over the past ten years on ICDPs in the country (Wells, et al, 1997). However, a review of the two official and eighteen unofficial Indonesian ICDPs finds these efforts very disappointing. Lack of success is due to insufficient institutional capacity and good governance, and failure to place parks within a broader regional planning framework (Wells, et al, 1997). Moreover, there have been no national-level indicators for success of ICDPs. Finally, as the large amount of foreign assistance indicates, ICDPs have costly funding implications as well.

In response to the limited success of ICDPs, international NGOs and donors now advocate for bioregional planning. Bioregional planning proactively addresses threats to protected areas emanating from economic development plans and projects in a broad area surrounding a park. This approach recognizes the many threats beyond the proximate threats of local communities – air and water quality, human settlements and migration, road networks, and more, all of which can cause ecosystem degradation and fragmentation to the detriment of a park. At the core of bioregional planning is improved governance, where stakeholders are empowered to make decisions while bearing a fair share of costs and benefits. The potential opportunities offered by UU 22/1999 and UU 25/1999 make bioregional planning particularly apt at this time; and, the financing mechanisms proposed in Chapter Four of this paper are integral to a bioregional planning approach.

2.1.2. Organizational and Human Resources for Park Management

The Government of Indonesia agency that formally oversees protected areas management is DepHutBun. The Department's responsibilities include oversight of all forest land use, forest product utilization, inventory, reforestation, research, and nature conservation. To provide a

sense of scale, DepHutBun employs over 30,000 people (Swisher, 1999) and had a 1998 budget of approximately \$75.3 million (PHPA, 1998). Reporting to the Minister in Jakarta are the heads of four directorate generals and 27 provincial *Kantor Wilayah* (Regional Forestry Offices, or KanWil). The directorate general specifically tasked with protected areas management, including national parks, is PKA. Again, to provide a sense of scale, PKA employs 1,788 people and had a 1998 budget of \$16.9 million (PHPA, 1998). Figure 1 displays relevant organizational relationships within DepHutBun.

Thirty-two national parks have dedicated “technical management units” with full-time staff (*Unit Pelaksanaan Teknis*, or UPT) while the remaining seven parks are managed by staff from the KanWil. The heads of the 32 UPT report directly to PKA headquarters. In the GOI hierarchy, UPT are divided into a higher and lower echelon, *Balai Taman Nasional* (National Park Office, or BTN) and *Unit Taman Nasional* (National Park Unit, or UTN), respectively. Functionally, BTN and UTN are the same, but the different echelon status does have implications noted below. In 1998, the combined staff for the 32 park management units was 2,624 people including both full-time and temporary employees (see Table 2). The seven parks without UPT are managed by divisions from the KanWil, the regional *Balai* and *Sub-Balai Konservasi Sumber Daya Alam* (Natural Resource Conservation Offices, or BKSDA and SBKSDA). The allocated budget for all 39 parks in 1998 was \$5.7 million (PHPA, 1998).

There are five immediate points of note about the above two paragraphs:

- One third of the PKA budget is devoted to national parks, but parks cover two thirds of all protected areas. This will be discussed later in this paper, but an initial explanation is that there are 39 national parks and 346 other types of protected areas. Despite the relatively small size of these other protected areas, they do legitimately command a share of resources. Moreover, portions of the PKA budget are reserved for conservation issues other than protected areas, such as species conservation.

Figure 1
Organizational Structure for National Park Management

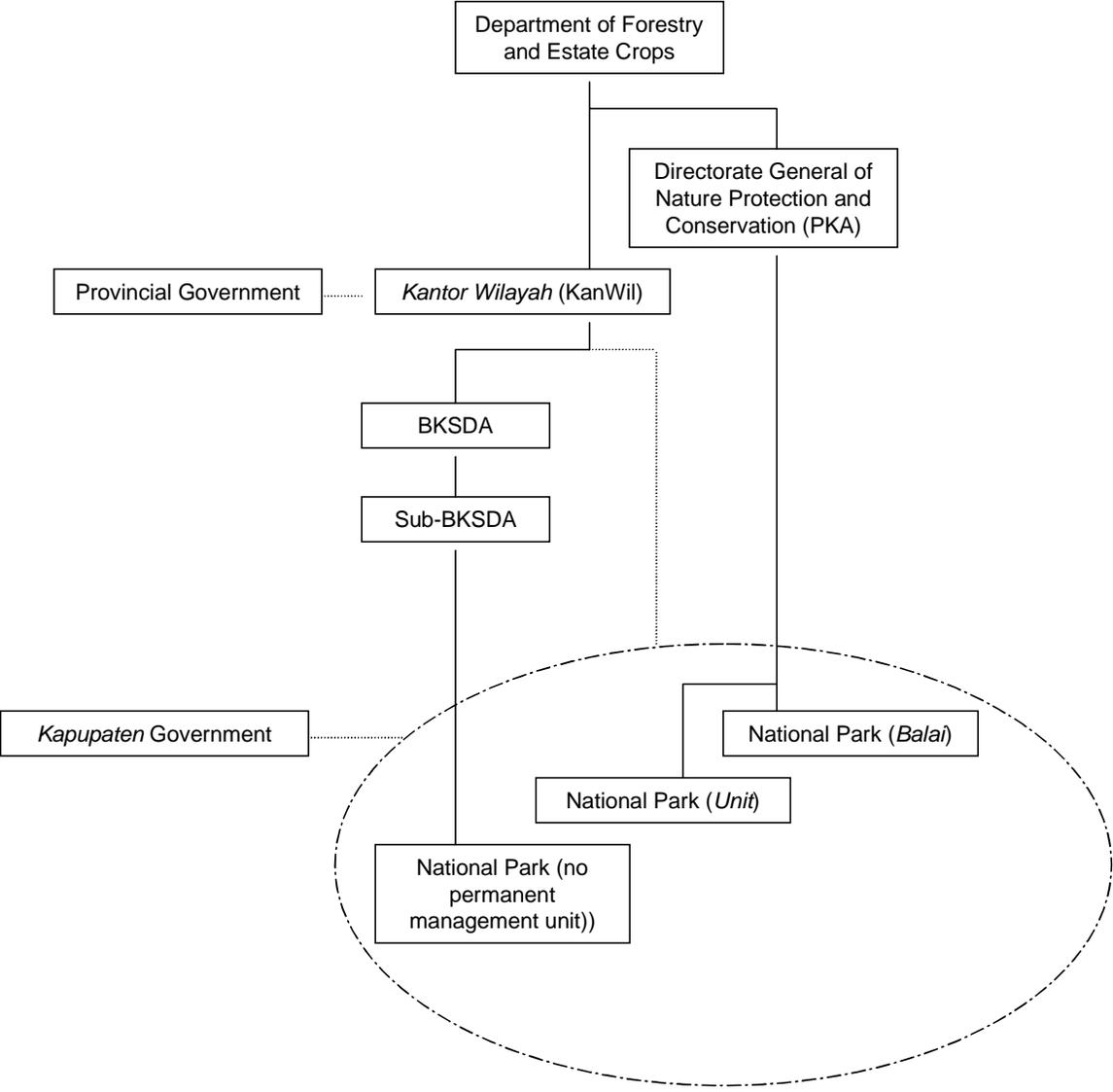


Table 2: National Park Staffing in 1999

Park	Location	Echelon	Permanent Staff	Total Staff	Hectares/ Total Staff *
Terrestrial Parks (32)					
Gunung Leuser	Sumatra	Balai (III)	176	201	3,940
Siberut	Sumatra	Unit (IV)	42	60	3,170
Kerinci Seblat	Sumatra	Balai (III)	141	154	8,890
Bukit Tiga Puluh	Sumatra	Unit (IV)	43	45	2,830
Berbak	Sumatra	Unit (IV)	42	45	3,610
Bukit Barisan Selatan	Sumatra	Balai (III)	97	104	3,510
Way Kambas	Sumatra	Balai (III)	130	274	470
Ujung Kulon	Java	Balai (III)	105	109	1,120
Halimun	Java	Balai (III)	63	65	610
Gunung Gede Pangrango	Java	Balai (III)	91	95	150
Bomo Tengger Semeru	Java	Balai (III)	65	75	770
Meru Betiri	Java	Balai (III)	75	75	770
Alas Purwo	Java	Balai (III)	90	100	430
Baluran	Java	Balai (III)	76	83	300
Bali Barat	Bali	Balai (III)	106	124	150
Gunung Rinjani	NTB	Unit (IV)	40	44	900
Komodo	NTB	Balai (III)	90	96	1,800
Kelimutu	NTT	Unit (IV)	20	25	200
Laiwangi Wanggameti	NTT				
Manupeu Tanah Daru	NTT				
Gunung Palung	Kalimantan	Unit (IV)	37	43	2,090
Danau Sentarum	Kalimantan				
Bentuang Karimun	Kalimantan	Unit (IV)	27	29	27,580
Bukit Baka Bukit Raya	Kalimantan	Unit (IV)	27	38	4,760
Tanjung Puting	Kalimantan	Balai (III)	54	61	6,800
Kayan Mentarang	Kalimantan				
Kutai	Kalimantan	Balai (III)	72	74	2,680
Bogani Nani Wartabone	Sulawesi	Balai (III)	127	131	2,190
Lorelindu	Sulawesi	Balai (III)	69	75	3,050
Rawa Aopa Watumohai	Sulawesi	Unit (IV)	43	48	2,190
Manusela	Maluku	Unit (IV)	50	60	3,150
Lorentz	Irian Jaya				
Wasur	Irian Jaya	Balai (III)	36	43	7,160
Subtotal			2034	2376	4,490
Marine Parks (6)					
Kepulauan Seribu	Java	Balai (III)	77	90	1,200
Kepulauan Karimun Jawa	Java	Balai (III)	54	60	1,860
Bunaken	Sulawesi	Balai (III)	34	39	2,280
Taka Bonerate	Sulawesi				
Kepulauan Wakatobi	Sulawesi				
Teluk Cendrawasih	Irian Jaya	Balai (III)	56	59	24,630
Subtotal			221	248	14,850
TOTAL (38 parks)			2255	2624	5,470

* This column answers the question, "On average, how many hectares are managed by one staff person?" Numbers are rounded to nearest ten.

- There is an apparent anomaly in that the number of staff listed as working for PKA (1,788 people, per PHPA, 1998) is *smaller* than the number of staff listed as working within national parks (2,624 people, per PKA, 1999). To make matters more confusing, other sources report PKA staffing as high as 4,800 in 1995 (The British Council, 1995; and, MacAndrews and Saunders, 1997) and the number of staff dedicated to specific park management units as only 1,200 (MacAndrews and Saunders, 1997). Perhaps the reason for this confusion is DepHutBun and PKA's frequent reorganizations, where whole administrative divisions disappear or appear overnight. For example, as recently as 1997, there were only 12 parks with BTN/UTN; now there are 32. Prior to 1997, all but 12 parks were managed by staff in the regional BKSDA and SBKSDA offices. In truth, it does not matter if park management staff come from PKA, other divisions within DepHutBun, or on secondment from other government bodies altogether. Rather, the proper operational question to ask is, "How many people work in each national park?" The fact that it is difficult to get that answer has implications for the overall management of park system financial resources. This study accepts the figure of 2,624 park staff, as it is based on frequently updated self-reporting by the heads of park management units.
- UU 22/1999 on decentralization implies the elimination of KanWil offices, giving the functions of these regional technical offices to provincial and *kabupaten*-level governments. Should this occur, the appraisal of human resources (and therefore, capital resources) devoted to park management will again change.
- An NRM Program sponsored review of human resources within the PKA found that the organization has serious shortcomings in the educational background of its staff (Swisher, 1999); similarly, national park managers reported in a survey that the lack of qualified staff was among their primary constraints (ACNielsen, 1998). Obviously, improving the education and training of PKA staff will have financial implications.
- While BTN and UTN are functionally the same, BTN, because of their higher echelon status, have greater access to counterparts within other agencies at the local level. Indonesian government can be very hierarchical. The head of a park UTN team is unlikely to be invited to participate in regional *kabupaten* or provincial coordination meetings, and will have less ability to advocate on behalf of the park.

2.1.3. Financial Resources for Park Management

Budgetary Components

All GOI agencies have a similar system of budgeting that is replicated from Ministries and Departments down to the smallest components of an agency. It is important to understand this system to understand the source and use of funds for the PKA and the 39 national parks. The PKA annual budget is divided into two major components, a routine budget (*APBN Rutin*) and a development budget (*APBN Pembangunan*) (see Figure 2).

The routine budget pays for the salaries of permanent employees, and regular equipment, maintenance, and travel costs. The routine budget is composed of the *daftar isian kegiatan* (the routine activity budget, or DIK), and is supplemented by the *dana pemerintah lainnya* (supplemental government funds, or DPL). The DPL funding pool is composed of a percentage of *dana reboisasi* (reforestation funds, or DR), *iuran hasil hutan* (forest concession royalties, or IHH), and fees derived from log auctions, mining rights auctions, park entry fees, and other sources (AIDAB, 1991 and MacAndrews and Saunders, 1997). The driving factor of the routine budget is really employee salaries, a function of the number of employees and their labor rates. Unless employees are added to a particular park or the PKA as a whole, routine budgets do not vary much in nominal terms from one year to the next.

The development budget pays for establishing the conservation estate and for the ongoing management of national park operation. The development budget is composed of the *daftar isian proyek* (project budgets, or DIP), *bantuan luar negeri* (donor funds, or BLN), and the supplemental funds of the DPL. In terms of national parks, DIP budgets fund yearly plans for new capital expenditures (e.g., new park headquarters buildings, staff housing, and roads) and operational costs (e.g., surveys, boundary demarcation, zonation, biodiversity conservation, community development, public awareness, publicity, security, and temporary staff salaries) (AIDAB, 1991 and MacAndrews and Saunders, 1997).

Prior to the economic crisis, the typical breakdown of the total budget was roughly 20 percent routine, 45 percent development, 15 percent BLN, 10 percent DR, and 10 percent IHH (see Table 3).

Figure 2: Breakdown of PKA Budgetary Components

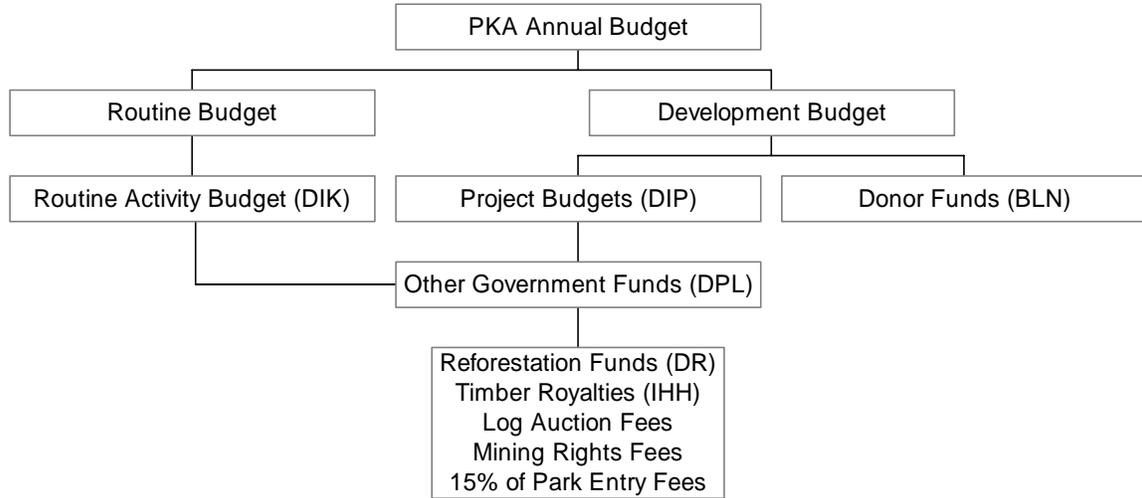


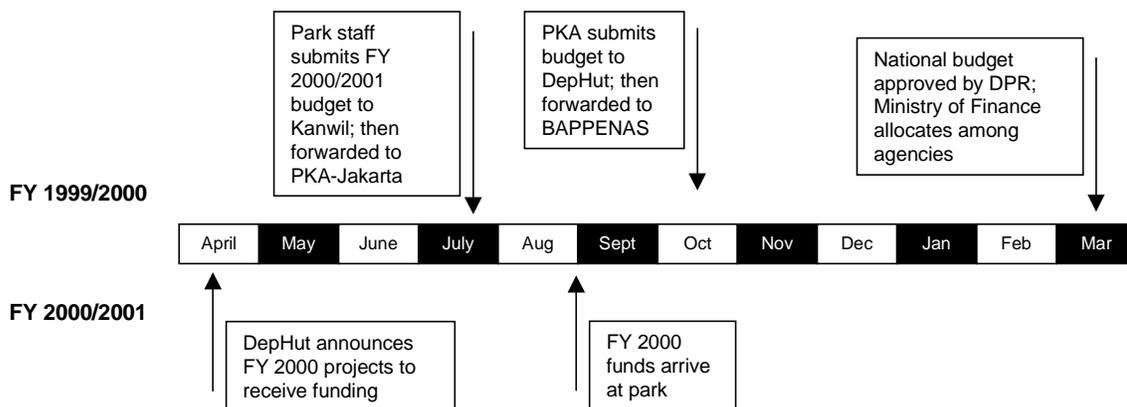
Table 3
Planned Budgets for All Parks Combined, March 1993 - April 1999

Budget Year	Component	Rupiah (nominal)	Rupiah (real)	U.S. Dollars	Percent	
1993/1994 <i>US \$1 = Rp 2250</i>	Development Budget	6,570,235,000	6,570,235,000	2,920,104	55.49%	
	Routine Budget	2,048,559,000	2,048,559,000	910,471	17.30%	
	BLN	1,231,632,000	1,231,632,000	547,392	10.40%	
	DR	456,990,000	456,990,000	203,107	3.86%	
	IHH	1,532,831,000	1,532,831,000	681,258	12.95%	
	Total		Rp11,840,247,000	Rp11,840,247,000	\$5,262,332	
1994/1995 <i>US \$1 = Rp 2300</i>	Development Budget	8,061,829,000	7,648,794,007	3,505,143	50.80%	
	Routine Budget	2,854,584,000	2,708,333,927	1,241,123	17.99%	
	BLN	1,455,257,000	1,380,699,221	632,720	9.17%	
	DR	3,499,080,000	3,319,810,199	1,521,339	22.05%	
	Total		Rp15,870,750,000	Rp15,057,637,353	\$6,900,326	
	1995/1996 <i>US \$1 = Rp 2330</i>	Development Budget	8,803,251,000	7,485,757,750	3,778,219	40.46%
Routine Budget		3,425,838,000	2,913,127,589	1,470,317	15.75%	
BLN		4,247,328,000	3,611,673,516	1,822,888	19.52%	
DR		2,858,990,000	2,431,113,977	1,227,034	13.14%	
IHH		2,421,454,000	2,059,059,551	1,039,251	11.13%	
Total			Rp21,756,861,000	Rp18,500,732,383	\$9,337,709	
1996/1997 <i>US \$1 = Rp 2360</i>	Development Budget	9,860,213,000	7,794,634,783	4,178,056	44.60%	
	Routine Budget	4,113,888,000	3,252,085,375	1,743,173	18.61%	
	BLN	2,483,869,000	1,963,532,806	1,052,487	11.24%	
	DR	2,720,511,000	2,150,601,581	1,152,759	12.31%	
	IHH	2,927,446,000	2,314,186,561	1,240,443	13.24%	
	Total		Rp22,105,927,000	Rp17,475,041,107	\$9,366,918	
1997/1998 <i>US \$1 = Rp 2500</i>	Development Budget	10,392,670,000	6,905,428,571	4,157,068	43.39%	
	Routine Budget	4,631,924,000	3,077,690,365	1,852,770	19.34%	
	BLN	4,400,151,000	2,923,688,372	1,760,060	18.37%	
	DR	1,604,656,000	1,066,216,611	641,862	6.70%	
	IHH	2,924,396,000	1,943,120,266	1,169,758	12.21%	
	Total		Rp23,953,797,000	Rp15,916,144,186	\$9,581,519	
1998/1999 <i>US \$1 = Rp 7500</i>	Development Budget	7,421,864,000	2,482,228,763	989,582	21.45%	
	Routine Budget	9,855,959,000	3,296,307,358	1,314,128	28.48%	
	BLN	8,390,613,000	2,806,225,084	1,118,748	24.25%	
	DR	3,537,239,000	1,183,023,077	471,632	10.22%	
	IHH	5,396,051,000	1,804,699,331	719,473	15.59%	
	Total		Rp34,601,726,000	Rp11,572,483,612	\$4,613,563	

Budgetary Process

The process of budgeting within national parks is similar for that of all government agencies, a multi-step and time-consuming process reflective of centralized control over finances (see Figure 3). In July of any given year, the staff of an individual park prepare and submit a budget to the regional KanWil office, which then submits the budget to the central PKA offices in Jakarta. PKA submits its overall budget to DepHutBun in October, which then forwards its Departmental budget to BAPPENAS. In March of the following calendar year, the National Assembly (DPR) approves the budget for the upcoming fiscal year (April – March), and the Ministry of Finance allocates funds to the line agencies. DepHutBun then decides which projects will receive funding. Funds for the park typically arrive as late as August or September, 14 months after the initial budget was prepared. Section 2.2.3 discusses the implications of this lag between budget request and funds receipt.

Figure 3
Budgetary Timeline



2.1.4. Legal Basis for Park Financing

In Indonesia, the highest law is the Constitution of 1945, or the *Undang Undang Dasar* (UUD 1945). Subordinate to the Constitution are the *Undang Undang* (UU), or Basic Laws or Acts passed by the National Legislature, followed by Government Regulations (*Peraturan*

Pemerintah, or PP), Presidential Decrees (*Keputusan President*, or KEPPRES), and Ministerial Decrees (*Surat Keputusan Menteri*, or SK) (AIDAB, 1991). There are numerous laws relating to protected area management, but they usually do not make specific reference to how these areas should be financed. Rather, they speak of ownership or the primacy of different levels of authority. It is left to the Ministers of relevant agencies (e.g., DepHutBun, Finance, Mines and Energy) to issue decrees which interpret from the higher laws and regulations how funds should be generated and allocated.

As we consider enhanced and alternative financing mechanisms, the laws which come under closest scrutiny begin with the Constitution, which states that the country's earth, water, and natural riches contained therein are to be administered by the government and shall be used for the benefit of the Indonesian people (ICEL, 1999). Subordinate to this fundamental statement on the country's natural resources is the new UU 22/1999 on Local Government Administration (passed in May, 1999), which seems to truly call for decentralized decision-making. UU 22/1999 replaces earlier laws on the same topic, UU 5/1974 and UU 5/1979 (USAID, 1999), which effectively abolished indigenous and local systems of governance in favor of central, Jakarta-dominated control of resources (ICEL, 1999).

In terms of revenue generation, the law raising the most questions is the newly passed UU 25/1999 on Central-Local Fiscal Balance. This law attempts to ensure that the sources of funding are consistent with devolved responsibilities under UU 22/1999¹, that there is a balance between local autonomy and national equity (i.e., that there is a sharing from resource-rich to resource-poor provinces), and that local governments have an adequate and more predictable funding stream (USAID, 1999). Interpretations of this law may require reinterpretations or the dissolution of UU 20/1997 on the Tariff for Non-Tax State Revenue and its subordinate PP 59/1998 (on non-tax revenue under the control of DepHutBun) and SK 878/1992 (on the collection and distribution of national park entry fees).

2.2. Analysis and Implications

What are the implications of these institutional arrangements? The size of the park system, management philosophies, organizational structure, human resources, budgetary components

¹ Note that Basic Laws such as UU 22/1999, UU 25/1999, and UU 20/1997 are *not specifically* about natural resources, protected areas, or national parks. Rather, it is the interpretation of these laws by relevant ministries which influences the management of parks.

and process, and laws all affect the efficiency of fund generation, allocation, and expenditure. We analyze these issues in turn, and provide further financial information to make the picture more complete.

2.2.1. Financing Implications of the Park System and Management Philosophy

Table 4 displays the budgets of DepHutBun, PKA, and the 39 parks combined for the past five years. The budgets are given in the actual rupiah figures for the year (i.e., nominal rupiah) and in dollars, which more truly reflects the impact of the economic crisis on conservation in Indonesia. The table shows that prior to the crisis, the DepHutBun budget was consistently well-above \$250 million/year, but then crashed by 70 percent for the budget year that began 1 April 1998. Similarly, the PKA budget stayed at about 10 percent of the

Table 4
Nominal and Real DepHutBun, PKA, and National Park Budgets, 1994 – 1998

	1994/1995	1995/1996	1996/1997	1997/1998	1998/1999	Total
DepHutBun (Nominal)	Rp 488,507,674,000	Rp 655,971,807,000	Rp 657,109,185,000	Rp 636,590,426,000	Rp 564,896,243,000	Rp 3,003,075,335,000
DepHutBun (\$)	\$212,394,641	\$281,532,964	\$278,436,095	\$254,636,170	\$75,319,499	\$1,102,319,370
PKA (Nominal)	Rp 52,904,256,000	Rp 57,681,743,000	Rp 62,159,052,000	Rp 78,915,409,000	Rp 126,887,515,000	Rp 378,547,975,000
PKA (\$)	\$23,001,850	\$24,756,113	\$26,338,581	\$31,566,164	\$16,918,335	\$122,581,044
PKA/DepHutBun	10.83%	8.79%	9.46%	12.40%	22.46%	11.12%
National Parks (Nominal)	Rp 15,881,360,000	Rp 21,761,883,000	Rp 22,150,324,000	Rp 23,934,727,000	Rp 42,566,893,000	Rp126,295,187,000
National Park (\$)	\$6,904,939	\$9,339,864	\$9,385,731	\$9,573,891	\$5,675,586	\$40,880,010
National Parks/PKA	30.02%	37.73%	35.63%	30.33%	33.55%	33.35%
DepHutBun Nominal Δ		34.28%	0.17%	-3.12%	-11.26%	
DepHutBun \$ Δ		32.55%	-1.10%	-8.55%	-70.42%	
PKA Nominal Δ		9.03%	7.76%	26.96%	60.79%	
PKA \$ Δ		7.63%	6.39%	19.85%	-46.40%	
Parks Nominal Δ		37.03%	1.78%	8.06%	77.85%	
Parks \$ Δ		35.26%	0.49%	2.00%	-40.72%	

Conversion rates: 1994 – Rp 2300 = \$1; 1995 – Rp 2330 = \$1; 1996 – Rp 2360 = \$1; 1997 – Rp 2500 = \$1; 1998 – Rp 7500 = \$1

DepHutBun budget and rose consistently for three years, reaching a height of \$31 million in 1997; it then fell by 46 percent with the crisis. Finally, the parks have consistently represented about 30 percent of the PKA budget, peaking at \$9.5 million before dropping by 40 percent with the crisis.

Table 5 is based on the data of Tables 1 and 2, showing park area, 1998 budgets, and staffing by biogeographic region. Close to half the parks are in Java, Bali, and Sumatra, which makes sense historically: conservation efforts started in these areas even prior to Indonesian independence in 1945, and Java has long had high population density placing pressure on limited parcels of unspoiled land. Over two thirds of the staff and budget are devoted to Java, Bali, and Sumatra, even though these regions represent only one third of the area included in national parks. This is in part structural (i.e., the designation of “national park” usually conveys a budget and staff) and in part a function of geography (i.e., it makes sense that most of the park area should be on Irian Jaya, Kalimantan, and Sulawesi, and for that matter, Sumatra, as these islands are far larger than the others).

Table 5
Park Area, Budget, and Staffing by Biogeographic Region

Biogeographic Region	Parks	Hectares	1998 Budget	\$/km ²	Staff	ha/staff
Sumatra	7	3,137,573	\$2,835,976	\$90	883	3,553
Java and Bali	10	601,003	\$1,179,978	\$196	876	686
Lesser Sundas	5	353,298	\$311,665	\$88	165	2,141
Borneo/Kalimantan	6	3,045,259	\$579,146	\$19	245	12,430
Sulawesi	6	2,631,139	\$538,291	\$20	293	8,980
Maluku	1	189,000	\$62,096	\$33	60	3,150
Irian Jaya	3	4,267,100	\$145,864	\$3	102	41,834
TOTAL	38	14,224,372	\$5,653,016	\$40	2,624	5,421

Tables A and B in Annex 1 show biogeographic grouping by budgetary component since 1993. Table A is in dollars while Table B expresses figures as a percent of all expenditures for the year. Thus, for example, the fourth column shows that in 1993, 46 percent of all routine expenditures were in Java and Bali, and 35 percent of total expenditures were there as well. These tables reinforce the geographic trends established in Table 5; namely that a

disproportionate amount of money and staff (as indicated by the routine budget) go to Java, Bali, and Sumatra. The tables also are useful for spotting outliers, such as areas of unusual importance for BLN and DR. Currently, foreign assistance is flowing into Sumatra, basically for Kerinci Seblat National Park, to the virtual exclusion of all other parks. Similarly, the majority of reforestation funds have gone to Java and Bali.

How BLN, DR, and IHH funds are used and allocated specifically is difficult to determine, other than that they supplement the development budget. Table C (Annex 1) shows the sum of the development budget, BLN, and DR, per PKA-mandated categories, since 1993. The table shows that from 1993 through 1996, construction of buildings and other facilities (e.g., bridges, roads, fences) and procurement of equipment occupied a considerable portion of total spending, reflecting an effort by the PKA to strengthen park infrastructure, which corresponds with rapid staffing of parks with dedicated UPTs. On the other hand, prior to 1996, park monitoring and patrolling, a critical function for conservation, received only a small portion of funds. Other critical activities critical to conservation, such as training and education, surveying, and planning have never received large amounts of funds.

Many reviewers have asked why the management approaches of enforcement and ICDPs have not performed well. Perhaps this was due to the small amount of money allocated to activities essential to the success of these approaches (e.g., monitoring and patrol, training and education, surveying), rather than a fundamental flaw in the approaches themselves (MacAndrews and Saunders, 1997). The argument here is that different management approaches entail different costs, and that the highly centralized decision-making and budgeting processes of the PKA have not responded to needs on the ground. The alternative financing mechanisms proposed here would encourage individual park managers to more carefully fund critical activities. Should PKA actively implement UU 22/1999 and UU 25/1999, the ability of park managers to manage strategically and adaptively will only be that much stronger.

Differing arguments can be made from the tables presented thus far. Using data similar to that of Tables 5 and A and B (Annex 1), MacAndrews and Saunders (1997) compared biogeographical funding allocations separately to threats [largely from population pressure], number of endemic species, and area of intact forest. They found the closest correlation between allocation and threats. This makes sense intuitively: more money goes to Java and Bali, which is also the area with the greatest threats of population growth and watershed degradation. MacAndrews and Saunders use this finding to say that not only is there a

disproportionate allocation of funds to these regions, but a *misallocation* of funds. They imply that the conservation goals of biodiversity protection and the maintenance of intact forests (i.e., goals that can be met on the large and less populated islands, such as Irian Jaya and Kalimantan) should take precedence over the goals of threat protection, visitor services, and outreach and education (i.e., goals of peri-urban parks in Java, such as Gunung Gede Pangrango). This paper disagrees with that argument. Instead, we follow Porter (1999) in saying that protection against threats and the allocation of funds to parks on Java and Bali may be equally appropriate goals. There is not an overallocation of funds to Java and Bali at the expense of funding for the outer islands. Rather, we should explore enhanced and alternative financing mechanisms to increase the total funding pool.

A divergence of opinion also results from Tables 1, 2, and 5. These tables show the average cost to protect a square kilometer (i.e., 100 hectares) of parkland and the average number of hectares covered by a single staff person. Comparing the parks and biogeographic regions to each other, a square kilometer of national park is far more costly in Java and Bali (\$196/km²) than anywhere else in the country, followed by Sumatra and the Lesser Sundas (reflecting inputs into Kerinci Seblat, Komodo, and Kelimutu National Parks, respectively). Correspondingly, staff in Java and Bali are individually responsible, on average, for the smallest amount of land (686 hectares in Java and Bali versus 41,834 hectares/person in Irian Jaya). Comparing funding and staffing for the 38 parks as a whole to global averages, Indonesia's allocation of \$40/km² and 5,400 hectares/person is quite favorable. Again, MacAndrews and Saunders (1997) use these figures to argue that the total amount of money and staff in the park system is appropriate; it is simply misallocated across the biogeographic regions and used inefficiently. However, we agree with Porter (1999) in rejecting these gross averages as useful indicators of efficient and appropriate resource allocation for the following reasons:

- The amount of money, staff, and equipment – indeed everything that entails the notion of how much it costs to pay for a park – are all dependent upon the opportunities and constraints facing a park. Gunung Gede Pangrango in Java, a park that provides recreational benefits for hundreds of thousands of visitors from Jakarta and watershed protection to thousands in surrounding communities, will simply cost more by most measures than Bukit Baka Bukit Raya in the middle of Borneo/Kalimantan, a remote park that maintains a large intact forest, receives few visitors, and that is comparatively free of population pressure.

- Comparison of resource allocations, especially area per staff, to global averages, loses meaning when we consider differences in terrain and existing infrastructure. For example, in Bentuang Karimun in Western Kalimantan, one staff person is responsible, on average, for 27,580 hectares, or 275 km². This is a square plot of land that measures a little more than 16 kilometers to a side. Imagine the difficult work of an Indonesian ranger patrolling such an area – through dense jungle, on foot. This ranger’s counterpart in the Great Plains of the United States, with a four-wheel drive vehicle and good roads, could easily cover a similar amount of terrain in four hours.
- Even before the economic crisis in 1997, many of the more remote parks suffered from inadequate budgets and staff – they were “paper parks” that existed only on a map. However, the crisis has basically halved park budgets. If there was any park that was truly adequately funded prior to the crisis [based on dollars per square kilometer of protection], it is probably in need of some additional funding today.

2.2.2. Financing Implications of Organizational and Human Resources

As mentioned in Section 2.1.2. above, the organization of the PKA and park management units may create structural redundancies that lead to the inefficient allocation of human [and hence, financial] resources. As recently as 1997, only 12 parks had dedicated park management units (i.e., UTN and BTN); now there are 32. Park management units are “staffed up” to fill slots, rather than to meet specific conservation needs (MacAndrews and Saunder, 1997). In the decentralized system that should result from UU 22/1999, park managers and local government officials will not rely on a formula for staffing an office. Instead, they can base staffing [and funding] decisions on such questions as “Given the distance and terrain, and the number of people living around the park, how many rangers, do we really need?” or “Given that our park harbors a rare and endangered species, how many ecologists do we need, and what skills should they have?” Managers can also ask the more difficult questions like, “Is our park better served by 30 rangers working half-time, or 15 rangers working full-time?” The alternative financing mechanisms proposed in Section 4 are well-suited to meet these demand-generated expenses.

As UU 22/1999 takes effect, the Kanwil offices of the DepHutBun will be folded into the provincial and *kabupaten* governments. This may lead to the elimination of some redundancies, or to the reallocation of staff from Kanwil offices to national parks. These

changes will require the fiscal autonomy [of local governments] that is de-linked from Jakarta. Alternative financing mechanisms, such as self-financing or trust funds generated by debt swaps, conform to these anticipated funding needs.

At the level of the individual, the ACNielson (1999) survey showed that park directors perceive the lack of qualified staff as their major constraint. The directors said they needed staff with more suitable educational backgrounds and work histories, better disciplined staff, and the training opportunities to upgrade the skills of these individuals. The survey also showed that park directors perceive their own leadership skills as the major requirement for success. Combined with the findings of Swisher (1999), the suggestion here is for more money allocated to short-term human resources development, as entailed in development budgets. Again, the purpose of enhanced financing mechanisms is to *do more with the same* and the purpose of alternative mechanisms is to *do more with more*. Implementation of capacity building activities may require that other tasks are sacrificed, but do not necessitate the sacrifice of overall conservation goals.

Finally, in the ACNielson (1999) survey, park directors reported that they suffer from insecure tenure and no clear PKA or DepHutBun policy on transfers. This prevents individual employees from gaining a sense of ownership over their work, and does not link incentives to good performance. Thus, park managers have little incentive to use limited funds as effectively as possible.

2.2.3. Financing Implications of the Budget Component and Process System

Budget Component System

How does the budget component system support or not support the effective allocation of funds for conservation? For the PKA manager seeking to reallocate funds or determine how much additional money is necessary, the current system lacks transparency on four different counts: (1) the amount of funds coming from outside the routine and budget line items is unclear; (2) the steady climb of the park budgets [until the economic crisis] creates a misperception of adequacy in allocations, particularly for staff salaries; (3) the disaggregation of the development budget is oriented for an input-output budgeting system rather than one oriented toward conservation goals; and (4) the division of supplemental fees, particularly gate entry fees, reduces the incentives of individual park staff for collection.

The current budget component system does not completely capture all sources of funds. Foreign assistance (BLN), which has represented from 9 to 37 percent of the system budget in recent years (Tables 3, 6, and 7), is in fact underestimated. Many donors have Jakarta-based projects which direct considerable assistance to the parks themselves [including the NRM/EPIQ Program sponsoring this report]. Moreover, the assistance of international and local NGOs does not appear in PKA budgetary statements, and historically, these groups have not made such information public. Also lost are the assistance of the private sector, such as the *Mitra Kutai* partnership, and the special user fee system in effect at Gunung Gede Pangrango National Park [and proposed for Komodo National Park.] Finally, provincial and *kabupaten* governments have their own budgets that they do not necessarily share with park directors, particularly if the director is of a lower echelon. This can lead to areas of overlapping expenditures, often in areas of community development and outreach. This last point is especially important in light of changing laws promoting increased decentralization.

The park system budget as a whole, and the routine budget which reflects staffing levels and salaries, rose consistently prior to the crisis. Yet, the Dudley and Philips (1999) study found that most parks suffered from inadequate protection. Perhaps this is due to salaries which do not provide enough incentive for park staff to do their jobs. *Jagawana* are among the lowest paid of Indonesian civil servants, receiving as little as \$15 per month.² If they do not receive a *paket* with supplementary funds, they often will not go on patrol. To determine how much money is actually necessary for a park, the question should look to the conservation goal: “We want 20 patrols per month to protect park borders and ensure no illegal activities occur within the park.” If \$15 per month buys one patrol from a ranger, the logic then is that \$300 per month is necessary to buy adequate protection.

The development budget, which ostensibly reflects the essence of conservation activities within national parks, does not promote the attainment of conservation goals (see Table C). The majority of line items relate to construction and procurement, while other line items, most notably *penataan kawasan dan lingkungan hidup*, are very unclear. Thus, the park manager who, for example, has a budget (the input) for building and equipping a park office, will do just that (the output), even if other activities, such as biological monitoring, are more important. Unclear line items can actually be to the park manager’s advantage, in that he or she can indeed spend money on critical needs (e.g., biological monitoring) as necessary, without

² Indonesian civil servant salaries follow a numeric scale and are adjusted each year. The lower range of *jagawana* salaries reported by PKA for input into DATANAS 1.0 is Rp. 112,500/month, or approximately \$15/month.

being pegged to inputs and outputs. However, *post facto* budget reviews do not then reveal how the money was used.

Finally, the distribution of DR, IHH, and other fees paid into the park system, including gate entry fees and tourism concessions, is not based on performance of park management staff. This has been especially true for gate entry fees. According to the 1992 DepHutBun Ministerial Decision 878/Kpts-II/92, these funds do not go directly to the parks. Rather, entry fees are distributed as follows:

- 15% toward general development activities and 15% toward conservation activities conducted by the government of the province in which the park is located;
- 40% toward general development activities conducted by the government of the *kabupaten* (the administrative region below a province) in which the park is located;
- 15% toward conservation activities funded out of the national treasury;
- 15% toward conservation activities funded out of the DPL pool managed by DepHutBun (Department of Forestry/PHPA, 1992).

This system reduces the incentives of the individuals and teams managing specific parks. The costs of the system (e.g., maintaining borders to prevent people from entering the park for free, staffing a gate, consistently collecting an entry fee) are borne by individual park staff and the team as a whole, but only a portion of the benefits (the money collected) return to the park, and that in a very indirect manner.

The ministerial decree affecting park user fees is expected to change in light of UU 25/1999. However, until now, both the level of fees and the collection rate of fees have been terribly low. From 1992 through 1998, the highest recreational fee established by SK Menhut No. 878/Kpts-II/1992 was only Rp. 2,000, and even after the latest revision of PP No. 59/1998, the highest recreational fee is Rp. 20,000 for foreign visitors (Effendi, 1999). Secondly, the statistics on visitation are unreliable – parks that receive thousands of visitors (e.g., Bunaken) do not routinely collect entry fees, while parks that receive only a scattering of paying international visitors (e.g., Bukit Baka Bukit Raya) report many more.

Analysis of the Budgetary Process System

The process of budgeting within GOI agencies presents its own set of challenges for National Park directors and PKA policymakers. As Figure 3 shows, the timing of budget submissions and funding allocations effectively shortens the period in which the park manager can work to achieve conservation goals. Based on management plans and plans for projects in the upcoming year, park directors must submit their budget requests a full 13-14 months before they can expect to receive funds. When funds do finally arrive, directors have only 7-8 months to spend a full year's budget. If at any point, the director wishes to make a revision, this slows the process even more. The fact that the spending and planning seasons overlap means there is too much work at some times and not enough at other times. The result is a check-list approach to management, where staff simply complete the activities on the books.

The events of the past few years have highlighted the inadequacies of this system. The fires of 1997 caught many national parks unprepared. One estimate says 90 percent of Kutai National Park in East Kalimantan was burned. With a static budget and a slow budgeting process, park managers were powerless to protect their parks. The economic crisis has made national budgeting decisions even more crucial, which has slowed the process even more. Thus, park directors have faced longer waits and more uncertainty while waiting for funds to arrive.

Park managers have complained that they must rely too heavily on central or higher approval for budgeting and spending decisions. They also cite a lack of transparency in the way money is allocated from PKA-*pusat* to the parks (ACNielsen, 1999). With decentralization and *reformasi*, park managers will have greater autonomy and ability to interact with local governments and other agencies at the local level. The result should be that park managers will negotiate a budget in a transparent process with the PKA in coordination with local counterparts. Park managers should be held accountable for these budgets and the goals of their parks, but not held to specific lines that promote check-list management.

2.2.4. Financial Implications of Legal Arrangements

The Indonesian Constitution, UUD 1945, says that all natural resources belong to the state. The Government has interpreted this to mean that the *sale* of natural resource areas and privatization are illegal. Such thinking has derailed conversations on some of the options

proposed in Chapter 4, most notably debt-for-nature swaps and quasi-privatization of parks. However, UUD 1945 has not prevented DepHutBun from granting concessions to timber companies or from treating the land as quasi-private.

To conclude, this chapter has reviewed the Indonesian national park system, management philosophy, organizational and human resources, budgetary components and processes, and important legal underpinnings. The findings are as follows. (1) The allocation of financial and human resources is skewed heavily toward Java, Bali, and Sumatra, although in and of itself, that does not mean that funds are used ineffectively throughout the system. The conservation goals being sought in those regions may be perfectly legitimate and just as worthy of funding allocations as the goals for the outer islands. (2) The components are ambiguous and the process is slow, overly-based on central government control, and is not transparent in terms of how funds are allocated throughout the park system. They lead to a budgeting system that is based on inputs and outputs and that does not meet the conservation objectives of the individual parks or the park system as a whole. Especially in light of the ongoing economic crisis and *reformasi* movement, now is a time for a paradigm shift in how funds are generated, allocated, and spent in Indonesia's national parks.

3. A New Paradigm for National Park Financing

This paper proposes a fundamental change in the way national park finances are generated, allocated, and spent, both within individual parks and across the 14 million hectare system as a whole. The suggestion is for financing mechanisms that assign costs to those who accrue benefits, that work toward conservation goals within individual parks, and that consider the overall objectives of the park system. The question that has plagued reviewers thus far, “How much does it cost to pay for a specific park?” is not even the right question to ask. Changing the thinking process behind park financing is not a simple step, but now is a particularly opportune moment to make such a change in Indonesia. Thus, we first review the turbulent political-economic climate in relation to the national parks, then we describe the underpinnings of alternative financing in detail.

3.1. The Effects of *Krismon* and *Reformasi* on the National Parks

The economic crisis which began about September 1997 precipitated the May 1998 resignation of a Suharto regime that had been in power for over 30 years. The subsequent administration of B.J. Habibie has presided over a freely contested election and the formulation of new legislation for more popular control of natural resources. These events – dramatic, and on a national scale – have had an impact on the national parks that makes us reconsider the adequacy of current financing mechanisms.

While there has been no detailed study of the all changes that have occurred in all 39 parks over the past two years, limited surveys (Angelsen and Resosudarmo, 1999), park manager surveys (ACNielsen, 1999) and anecdotal evidence from NRM Program provincial liaison staff suggest the parks have been facing serious problems. The first problem has been drastically reduced budgets across the board, as we saw from the longitudinal tables in the previous chapter. There has been a 40 percent reduction overall, and 12 parks have had budget decreases of more than 65 percent.³ This has meant less money for salaries, equipment, construction, enforcement, education, outreach, environmental monitoring, and all the other activities that constitute park management. Certainly from the perspective of *jagawana*, the “front line” of park protection, their civil servant salaries were already low and provided only limited incentive to perform; *krismon* has reduced their buying power and

³ Data derived from DATANAS 1.0.

made their real salaries even lower. Park directors reported as much in the AC Nielsen survey (1999), where they said a major constraint is lack of money for salaries. Directors in the 20 parks that have received UTN or BTN in the past two years particularly feel the budget squeeze. These parks have had high infrastructure and hardware needs as they were rapidly “staffed up” and made operational. However, the directors report lack of money for transportation, maintenance, and communications equipment; thus, there has been no way for *jagawana* to go on patrol, no way for outreach workers to visit local communities, and no way for park directors to contact their staff in the field.

With *krismon* has come increased pressure to use natural resources as a source of cash. Related to this common-sense notion, Angelesen and Resosudarmo (1999) tested different hypotheses in four provinces, Riau, Sulawesi Tengah, Kalimantan Timur, and Kalimantan Barat, and found the situation varied. They found that a drop in income from subsistence crops lead to increased illegal timber felling in Kutai National Park (Kalimantan Timur), and increased exploitation of non-timber forest products in Lore Lindu National Park (Sulawesi Tengah). These findings are supported by the ACNielsen (1999) survey in which park directors report having observed increased land encroachment, logging, collection of non-timber forest products, and hunting all on a local scale. In Lore Lindu, NRM Program staff have seen land clearing to grow export commodities like cocoa and coffee in order to take advantage of higher prices. Similarly, NRM Program staff in Bunaken National Park (Sulawesi Utara) report an increase in the export-driven live fish trade [conducted illegally within or around the park] and increased seaweed cultivation (Merrill, 1998). Finally, NGO observers report concession-driven illegal logging within Leuser and Tanjung Puting National Parks as an opportunistic response to political change and bureaucratic confusion (Newman, et al, 1999).

On the other hand, in some ways, the economic crisis may actually be decreasing pressure on the country’s resources and national parks, for capital intensive extractive industries (e.g., timber, mining, rubber plantations) had to scale back their activities for a period. Similarly, the implementation of public works projects (e.g., roads) also slowed down, to the benefit of the parks. However, any such downturn in economic activities will not last long. PKA expects the effects of the crisis to last for three years (ACNielsen, 1999), and there is pressure for Indonesia to “buy” its way out of the crisis by rapidly exploiting the timber and mineral resources around [and even in] parks. (For example, the NRM Program staff in Kalimantan Timur reports pressure by mining companies to obtain exploration and extraction rights *within* park boundaries (Merrill, 1998.))

These events represent a grave threat to Indonesia’s national parks. At the same time, the Government of Indonesia recognizes it must eliminate the highly centralized and corruption-prone system of the past. With a new government coming into power and new laws like UU 22/1999 and UU 25/1999, there is an historic opportunity to make changes in national park management and financing. MacAndrews and Saunders (1997) argued two years ago that the PKA had sufficient funding, and that its problems were due to inefficiency and overallocation of finances and staff toward Java, Bali, and Sumatra. Today, even in light of the huge budget cuts in the PKA and park system, some would argue that inefficient use of existing organizational resources is still the primary issue. The contention here is that, indeed, efficiency can be improved; but, the park system also needs more money, more and better trained staff, and more hardware to accomplish its job. Who is going to pay for this? How much does it even all cost? The traditional way for answering the latter question is to suppose, for example, that parks on Java receive adequate management, and that the other parks need to be brought up to this level. So if parks on Java receive \$196/km² and have one staff person for 6.8 km² (Table 4), then management of 25,000 km² Lorentz National Park in Irian Jaya (Table 1) will cost \$4.9 million and require more than 3,000 people. This is plainly absurd, but it points to a new way of funding parks.

3.2. The New Paradigm: Incremental Financing

A new paradigm for national park financing changes the whole line of questioning traditionally used by the PKA and international donors, as shown in Table 6 below. This leads toward a concept called *the beneficiary pays*.

Table 6
Interrogatory for Alternative Financing

Traditional Line of Questioning	New Line of Questioning
How much does a park cost?	How much is a park <i>worth</i> ?
What are the <i>inputs</i> ? (e.g., number of staff, number of vehicles, number of guard houses)	What are the <i>goals</i> ? (e.g., the <i>opportunities</i> for biodiversity conservation and tourism promotion; the <i>threats</i> of illegal logging)
<i>Who</i> pays? (e.g., the central Government and DepHutBun <i>pusat</i>)	What are the <i>benefits</i> and <i>costs</i> of the park, <i>to whom</i> do they accrue, and to whom <i>should</i> they accrue?

3.2.1. How Much Is a Park Worth – Resource Valuation

Resource valuation uses economic techniques to quantitatively measure the use and non-use values of a park. Markets only capture part of the benefits of a park, the direct use values, for example: the value to local collectors of non-timber forest products or the entry fees collected from each visitors. Markets do not capture a park's indirect use values (e.g., watershed protection, research), option values (e.g., genetic resources for future exploitation), bequest values (e.g., the value of preserving a forest for use by a later generation), and existence values (e.g., biodiversity conservation; cultural and social cohesion). Many accurate and reliable methods exist to measure these non-market values, including production function, contingent valuation, travel cost, expenditure cost, prevention cost, replacement cost, and hedonic pricing⁴. These methods show in monetary terms how much the park is contributing to local households, and in turn, to the regional economy.

Resource valuations show that national parks are actually an *asset* to the regional and national economy, rather than a *lost opportunity* for the exploitation land and natural resources. Indonesia need not protect its parks only as a measure of charity; the parks are an investment that generates annual returns. Resource valuation helps measure those returns. For example, studies in Bunaken National Park show the direct and indirect use values within the economy to be \$11 million per year (LaFranci, 1999). If the asset is worth \$11 million per year, the budget should not necessarily be that high, but it should be high enough to reflect the importance of the asset. This is an important caveat – the role of management is to prevent loss of value to the resource, or to add value to it. Resource valuation gives a sense of scale for the management inputs, however.

3.2.2. What Are the Goals of a Park – Opportunities and Threats

The traditional approach for financing a national park in Indonesia is to ask what are the inputs: how many staff, how many vehicles, how many buildings. Using this approach may lead to the hiring of staff and the procurement of some number and type of items, but it does not necessarily lead to good conservation management within the park. A more critical analysis instead asks, “What are the opportunities and threats facing a particular park?” This

⁴ The reader is referred to the large volume of literature on resource valuation theory and techniques, as well as the many studies conducted in Indonesia, for more information on this topic.

critical thinking also applies on a national scale, where PKA managers can ask “What are the goals of the park system as a whole?”

For an individual park, the goals could be any one or combination of the following: species preservation or conservation; ecosystem-type preservation; ecosystem conservation; recreation and tourism; education; ecological research; community development; maintenance of individual and community livelihoods (e.g., through collection of non-timber forest products for use or sale, sustainable logging, and subsistence hunting and fishing); watershed protection; and regional or national pride. Simply allocating an amount of money and staff to a park, based on its status as a park or based on its size, does not guarantee achievement of those conservation goals. The individual park manager must think critically: “If a goal of my park is education, then I need environmental educators, a high quality visitor center, print materials, and coordination with local schools. Perhaps certain things will not happen. Maybe we will not hire a forestry extension worker.”

From a system wide perspective, while all of the above goals apply, some take priority during times of economic crisis and budgetary constraints. Those who fund the parks [primarily the Government of Indonesia and foreign donors] must then openly decide, for example, “If large intact ecosystem preservation is the primary goal, then funds should go to the large parks. If education and awareness is the primary goal, then funds should go to parks near significant population centers.” The implication is that the PKA may need to competitively weigh one park against the other and ask hard questions. Does the marginal value of an additional park on Java outweigh the value of a park in the relatively underrepresented Lesser Sundas?

In terms of threats, individual parks face: agricultural encroachment by small-holders or plantations; poaching; illegal logging and forest product collection; border violation by timber and mineral concessions; roads, dams, and other infrastructure; upstream pollution or land degradation; over-fishing, over-hunting, and over-cutting in areas adjoining the park; non-sustainable logging practices in buffer zones; and non-sustainable fishing practices (e.g., use of cyanide or bombs). Again, the park manager must critically ask: “If my critical threat is land encroachment by individuals, perhaps I need *jagawana* and a community conservation agreements specialist.” Table 7 outlines the opportunities and threats for 18 national parks.

3.2.3. Accrual of Costs and Benefits

In traditional park financing, the parks are largely reliant on public funds and foreign aid. However, the paradigm proposed here suggests that the beneficiaries should bear a fair portion of the costs. Thus, we ask what are the benefits and costs, where do they accrue, and to whom should they accrue. The benefits have been discussed in quantitative and qualitative terms in the two sections above. The costs, not yet mentioned, include the opportunity cost of land [for agriculture and settlement], timber, mineral, and marine resources; the capital costs of salaries, staff and organization development hardware, and conservation activities; and in some cases, the actual loss of property or life due to wild animals that reside in parks.

As Table 7 shows for specific parks, the benefits and costs are often borne by different actors. The classic divergence is for non-local tourists, where they reap the benefit (i.e., recreation in the park) and bear a small or negligible portion of the costs (i.e., park entry fees). The communities and region surrounding the park bear a much greater opportunity cost for the foregone use of the park's resources, and the national treasury bears the cost of providing park financing and staff. Similarly, there is the immeasurable value of species and park existence to the global community; however, the global community bears the relatively small cost of foreign aid for the parks. The vast majority of costs are borne by the Indonesian people, regions surrounding parks, and the country.

Perhaps a less appreciated divergence of benefits and costs are cases where parks provide significant value to the regional economy, but the financing costs are borne nationally. Examples include Bunaken National Park (which draws significant numbers of tourists to North Sulawesi, serves as a hatchery for an important domestic fishing industry, and provides a sanctuary to grow sea grass) and Gunung Gede Pangrango (which provides huge watershed protection benefits to surrounding communities and is visited by thousands of domestic tourists every year). Bioregional planning responds, in part, to this divergence by encouraging leaders and resource managers to consider all the activities within a circumscribed area (e.g., a watershed, river basin, coastal mangrove zone, habitat area). This approach demonstrates how that within a single bioregion, economic and conservation activities need not be mutually exclusive; in fact, they can be mutually supportive.

Incremental financing answers the normative question of who *should* bear the costs with the following answer: the *beneficiaries*. Thus, tourists should bear a greater amount of the costs

for their enjoyment of the park; the costs assigned to select stakeholder groups (e.g., commercial fishermen) should reflect the benefits they gain; regions should bear a greater amount of the costs for the economic and ecological benefits they enjoy; the nation should bear its fair share of costs; and certainly, the global community, which gains so much from the existence value, recreation value, and the maintenance of global environmental systems from Indonesia's national parks, must bear a much greater financial responsibility than it currently does. After matching costs to those who benefit, incremental financing then considers issues of scale to determine the appropriate financing mechanism (e.g. higher gate entry fees are irrelevant in a remote park with few visitors). The next chapter outlines different financing mechanisms in relation to specific parks in Indonesia.

Table 7
Incremental Financing Matrix for Selected National Parks

National Park	Goals*	Threats*	Benefits/ Beneficiaries	Costs/Bearers of Costs	Financing Mechanism
Gunung Leuser	Species and ecosystem conservation (megafauna, birds, and large intact forest); tourism	Illegal logging; agricultural encroachment; poaching	Global community; international and domestic tourists; surrounding communities (watershed protection); surrounding region	Local communities (opportunity cost of agricultural land); nation (opportunity cost of timber and minerals)	Varied: restructured system of user fees and research fees for greater self-financing; provincial and national contribution; globally funded biodiversity trust
Siberut	Endemic species conservation; cultural diversity; ICDP	Population growth, pollution, forest conversion, hunting	Global community and nation (existence value); small number of tourists	Communities of Siberut; nation (opportunity cost of natural resources)	National contribution; trust funded by debt-for-development/debt-for-nature swap
Kerinci Seblat	Species and ecosystem conservation; ICDP	Large-scale economic development; roads; agricultural encroachment	Global community; surrounding communities (watershed protection); surrounding region	Local communities (land); regional (wholesale economic development) nation (mineral resources); international donors	Greater responsibility of regional authorities and local communities along with greater revenue capture; globally funded ICDP trust
Bukit Tigapuluh	Lowland forest conservation; tourism	Timber concessions; plantation crops; forestry operations in buffer zones	Global and national communities (existence values); eco-tourists	Region and nation (opportunity cost of timber)	Active ecotourism promotion; timber concession partnerships; national support
Gunung Gede Pangrango	Domestic tourism; conservation education; watershed protection for domestic, agricultural, and industrial use; Javan montane forest ecosystem; endemic species; UNESCO Biosphere Reserve	Litter and vandalism (related to tourism); small-scale agricultural encroachment	Tourists; surrounding communities (watershed protection valued at \$1.5 billion annually); region benefits from 50,000 annual visitors to park	Costs of staffing and activities (borne by national treasury)	Self financing via restructured user fees; partnerships with the private sector and non-government organizations (i.e., Gede Pangrango Halimun Consortium); regional assumption of costs
Gunung Halimun	Conservation of endemic mammal and bird species and large intact ecosystem	State-owned gold mining operation; small-scale mining; illegal NTFP collection	Surrounding region and communities; nation (existence value)	Costs of staffing and activities (borne by national treasury)	Self financing via restructured user fees; partnerships with the private sector and non-government organizations (i.e., Gede Pangrango Halimun Consortium); regional assumption of costs

Table 7 (continued)

National Park	Goals*	Threats*	Benefits/ Beneficiaries	Costs/Bearers of Costs	Financing Mechanism
Ujung Kulong	Tropical forest and marine ecosystem; endemic mammals (rhino, leopards, primates) and 270 bird species; tourism	Poaching; land development and encroachment	Surrounding communities (local watershed protection); nation and global community (tourism, research, existence value)	Opportunity costs borne by local communities; national and international NGOs	Greater management cost to be borne by NGOs and research groups; higher user/gate-entry and concession fees; tourism partnership
Kutai	Large intact dipterocarp forest protecting half of all Bornean mammals (incl. orangutan); aquifer protection for nearby domestic and industrial uses (oil and gas)	Population growth; coal mining and oil exploration; industrial forestry; highway construction; opportunistic agricultural encroachment; fire	Surrounding communities and industries (watershed protection), nation and global community	Opportunity and management costs borne by nation; contribution by <i>Mitra Kutai</i> private sector partnership; international donors	Higher concession and exploration fees for private sector; greater involvement of <i>Mitra Kutai</i> ; carbon offset program
Kayan Mentarang	Very large and remote lowland-upland forest; floral and faunal biodiversity; indigenous peoples	Local overexploitation of NTFPs; hunting pressure; overlapping boundaries with forestry concessions	Local communities that rely on park products; global community (existence value)	Opportunity costs borne by local communities and nation	Debt swap, carbon offset, and biodiversity trust to meet relatively small management costs
Bukit Baka Bukit Raya	Large and remote lowland-montane forest; endangered avifauna, primates	Seven logging concessions on park borders; small-scale agricultural encroachment and gold mining	Local communities that rely on park products; global community (existence value)	Opportunity costs borne by local communities and nation	Debt swap, carbon offset, and biodiversity trust to meet relatively small management costs
Take Bone Rate	Large and remote marine reserve with diverse coral reef habitats; fishery protection; small amount of international tourism	Over-exploitation by commercial and subsistence fishermen; potential natural gas exploration	Surrounding region and nation (benefits of large fishery); global community (existence value)	Opportunity costs borne by fishing industry; management costs borne by nation	Greater responsibility borne by region; national funding; enhancements for increased managerial efficiency
Bunaken	Marine habitat biodiversity; high marine species biodiversity (2,500 fish species); mangroves; seagrass beds; tourism	Overfishing and destructive practices (cyanide, bombing); unregulated tourism; coastal pollution from Manado	Tourists, tour-operators, seagrass farmers and exporters, city of Manado and province of North Sulawesi	Local people and fishermen; national treasury; international donors	Regional assumption of costs; tour-operator partnerships; higher concession and user fees

Table 7 (continued)

National Park	Goals*	Threats*	Benefits/ Beneficiaries	Costs/Bearers of Costs	Financing Mechanism
Bogani Nani Wartabone	Floristically rich lowland forest; watershed protection for successful irrigation scheme	Population growth; landless people; several hundred small-scale gold miners; illegal hunting and rattan collection	Irrigators and surrounding region; nation and global community (existence value)	Opportunity costs (local people and region)	Continued domestic funding, perhaps enhanced via domestic conservation trust; greater management responsibility of local NGOs
Lore Lindu	Large and diverse forest; UNESCO Biosphere Reserve, nominated World Heritage Site of unique biological, cultural, and archaeological importance; major catchment area protection for provincial capital and several large irrigation schemes; ICDP	Local land encroachment; encroachment by cacao and coffee plantations; planned infrastructure (roads and hydroelectric dam) and transmigration sites	Local communities, surrounding region, nation, and global community	Opportunity costs (local people and region); nation and international donors and NGOs (management costs)	Greater regional contribution; community conservation agreements; debt swap and ICDP trust
Komodo	Diverse marine ecosystem and species (900 fish faunas); endemic species (Komodo dragon); fishery protection; seagrass cultivation; tourism; ICDP	Felling of trees mangroves for fuel; destructive fishing practices; unregulated tourism operations in surrounding areas	Regional economy, tourists, nation and global community (existence value)	Local communities; national treasury; The Nature Conservancy (major international provider of financial and technical assistance)	Self-financing via altered user and tourist fees, tourism partnerships; biodiversity trust fund
Lorentz	Very large, remote, and diverse forest extending from coastal swamp to alpine habitat; indigenous peoples	Major gold and copper mining activities and associated population and infrastructure; two logging concessions	National economy (from resource mining concessions), nation and global community (existence value)	Local people	Dramatically increased operation fees for private sector; debt swap and carbon offset program; biodiversity trust
Wasur	Large lowland and coastal savanna area; marsupial species and migratory avifauna; indigenous peoples; watershed protection for city of Merauke	Illegal hunting; large scale development (transmigration and associated infrastructure)	Local people (NTFPs), region (watershed protection), nation, global community	Local people, national treasury, WWF (major provider of technical assistance)	Regional assumption of costs and benefits with major support from debt swap and biodiversity trust

* These columns based on Wells (1999).

4. Enhanced and Alternative Financing Mechanisms

Perhaps in times past, the socio-economic conditions, political regime, and institutional strength of the Indonesian national park system did not allow for a great many financing options. However, in this era of *reformasi* and decentralization, in combination with the urgency created by the economic crisis, the PKA can now consider no fewer than seven ways to generate new finances for its 39 parks. In the case of each, the guiding principles are: (1) consideration of the conservation goals of the park and magnitude and type of threats; and, (2) the beneficiary pays, or ensuring that those who accrue benefits also share in the costs of park management. The first principle determines the scale of necessary financial, human, and organizational resources, thereby suggesting an appropriate alternative mechanism – some generate more resources than others. The second principle also allows for the selection of an appropriate mechanism, in that different mechanisms target different beneficiaries. Regardless, there is no single “right” alternative applicable for all 39 parks, nor for that matter, is there often a single alternative for any individual park. As the final column of Table 7 began to demonstrate, each park has different opportunities and constraints, and the PKA can choose the one or many appropriate alternatives.

4.1. More Efficient and Cost-Effective Use of Existing Resources

- *Applicability: all parks.*
- *Financial scale: unlimited.*

Strictly speaking, the suggestion here is for the *enhancement* to existing mechanisms rather than a new or alternative form of financing. Some argue, in fact, that new financing should only come *after* the DepHutBun and PKA have improved themselves as institutions (MacAndrews and Saunders, 1997). While this paper posits that institutional strengthening should occur simultaneously with the introduction of alternative mechanisms, by using existing resources more efficiently and effectively, the government can essentially “find” money for the funding of its park system. Here we recognize the Indonesian nation as the beneficiary of its park system, and the government as the legitimate bearer of the associated costs.

First and foremost, there is the potential to reallocate personnel (and attendant financial resources) out of Jakarta, off of Java, and out of KanWil offices and into the parks. Chapter 2 showed there are a large number of staff dedicated to parks on Java; the British Council (1995) demonstrated the large number of staff dedicated to PKA headquarters in Jakarta; and, UU 22/1999 promises the potential dissolution of KanWil offices. Consideration of the goals of the park system as a whole might dictate the redistribution of staff. For example, if goals of the park system are “effective protection in each biogeographic region” or “maintenance of unique ecosystems protecting biological diversity as part of Indonesia’s contribution to the global heritage,” then the PKA might “find” human resources in Java and move them to Kalimantan and Irian Jaya. Secondly, the Ministry of Finance holds, and the DepHutBun manages, a *dana reboisasi* or reforestation fund estimated to be in the hundreds of millions of dollars. Considering national priorities as a whole might dictate a greater portion of reforestation funds be allocated to national parks.

In both the case of staff and the reforestation fund, the question is one of priorities. The PKA must look at the park system as a whole and competitively weigh one park against the other, one activity against the other. Does this mean the degazettement of a park, or the removal of staff from a park? No, but it does call for a hard look at the goal of park *management*. The goal of management is to prevent the loss of value of the resource (e.g., through prevention of encroachment) or to add value to the resource (e.g., by using the park as a center for community education). If the management unit is not meeting those requirements effectively, inputs should be reduced.⁵ In other words, some parks might simply require fewer people and less funds because with adequate protection, nature will manage itself. Similarly, the Government of Indonesia uses the reforestation fund for a host of legitimate economic development activities. It might now weigh different options (e.g., transmigration versus park management) to determine which will lead to sustainable development over the long term.

Finally, others have described numerous ways to improve the PKA as an institution: from an organizational perspective (The British Council, 1995), from the perspective of park management units (Swisher, 1999), and from the perspective of individual employees (Swisher, 1999). This paper will not repeat their work, but contends that one well-trained ranger is better than two poorly trained employees, and that a focused and goal-oriented team

⁵ Certainly, if the UPT is performing unsatisfactorily, before the entire unit is demobilized, the director should be replaced, or the management plan should be revisited. In the case of the latter, the size of a UPT could shrink dramatically.

of 30 managing a park are better than a team of 60 who are placed simply to fill spaces on an organizational chart. Investment in existing human and organizational resources, in the short term, can save far more money in the long term.

4.2. Self-Financing through Non-Tax Revenues

- *Applicability: parks with high level use of whatever nature in and around the park (e.g., tourism – Gunung Gede Pangrango, Komodo, Kelimutu; mineral prospecting – Lorentz; commercial forestry – Kutai; watershed protection for industry and commercial agriculture – Gunung Gede Pangrango, Lore Lindu).*
- *Financial scale: dependent upon use. Tourism could generate on the order of \$200,000/year in gate-entry fees in some parks; user fees for mineral prospecting could be above \$1,000,000.*

Self-financing, or *swadana*, adheres strictly to the principle of the beneficiary pays. If the regulations and decrees for the division of non-tax revenues are rewritten [for which there is now *potential* opportunity under UU 25/1999], parks could collect fees for any use within or on their borders. The parks could then use the fees for its conservation goals, without forfeiting the majority of funds to the national treasury. This model is now in use in Indonesia in many hospitals, the Bogor Botanical Gardens (MacAndrews and Saunders, 1997), and the Borobodur archaeological site in Yogyakarta. It also is in operation in the United States, where Grand Canyon National Park is using a fee demonstration program for self-financing.

Potential users which could sustain higher fees are tourists, tourism concession operators, researchers and biodiversity prospectors, collectors of non-timber forest products, independent and commercial loggers, independent and commercial fishermen, and independent and commercial mineral prospectors. In the case of tourism, numerous studies (see Effendi, 1999, for a review) have shown domestic and international tourists have a much higher willingness-to-pay than the current park entry fees. Thus, in well-visited parks (e.g., Gunung Gede Pangrango, Bromo Tengger Semeru, Komodo, Kelimutu, Bunaken), where there can be thousands of visitors per year, we might conservatively estimate separate fees for Indonesian and international tourists. For example, in Gunung Gede Pangrango, 30,000 annual Indonesian visitors might accept a charge of \$2, and 20,000 foreign visitors might accept a charge of \$7, for a total revenue of \$200,000. The Nature Conservancy has made

such a proposal for Komodo National Park (Djohani, 1999). Similarly, the PKA and park managers could charge [and collect] higher licensing fees to the operators of tourism concessions: dive operators (e.g., Bunaken, Komodo, Ujung Kulon), hoteliers, trekking outfitters (e.g., Gunung Leuser, Kerinci Seblat, Lore Lindu), bus tour operators (e.g., Gunung Gede, Bromo, Kelimutu). Ecotourism, nature-based travel, and adventure travel are all big and growing endeavors in Indonesia (Sproule and Suhandi, 1997). Finally, the Government could add a premium to airport taxes for international tourists that is targeted for parks. As applied to tourism, the financing principle says, “Tourists and tour operators benefit from the park; therefore, they should pay for their gains.”

Commercial timber, mineral extraction, and fishing operations also bear special note. While these operations may benefit only to a small degree from the presence of a park (e.g., reefs serve as fish breeding grounds; more typically, the operations see the park as a lost opportunity to exploit more resources), they often represent a major threat. Technically, these operations are not allowed in national parks; however, they often border parks and cause serious direct and indirect ecosystem disturbances (e.g., mine tailings degrading watersheds; logging causing habitat fragmentation; overfishing). In this case, the financing principle says, “Commercial operators threaten parks, creating a management cost; therefore, they should pay for the costs they incur.” Considering the revenues generated by mining operations like Freeport McMoran bordering Lorentz National Park, a mandated annual “park contribution” of \$1,000,000 is within reason; for the commercial operator, such a tariff would just become part of the cost of doing business that they could pass on to the consumer.

There are a few caveats and notes about self-financing mechanisms. The first is that all require the institutional infrastructure and will to monitor use, collect fees, and prosecute violators. In the case of tourists, it requires staff at a gate who collect fees and turn away those who refuse to pay. In the case of commercial operators, it requires rangers on patrol, police willing to make arrests of those who infringe on borders, and a court system that forces companies to pay fees and fines. Second is the importance of scale. For example, Bukit Baka Bukit Raya is a large and remote park with very few visitors. Charging the few hundred tourists who visit each year \$7 as opposed to \$2 will have only marginal effect. Therefore, creating the infrastructure to promote tourism and collect fees is probably not worth the input. Finally, as MacAndrews and Saunders (1997) note, higher user fees not only raise more money; they have an additional advantage of serving as a management tool themselves. Through discriminatory pricing, user fees can choke off excess demand; the

price (be it \$7 for a tourist or \$1 million for a timber company) reflects the scarcity value of the resource.

4.3. Partnerships with the Private Sector and Local Communities

- *Applicability: parks where the private sector and communities have a significant stake in seeing resources managed sustainably (e.g., Bunaken and Take Bone Rate Marine National Parks, any of the terrestrial ICDP sites) or in parks where the private sector can gain publicity for being a good corporate citizen (e.g., parks with large intact forests, endemic species, or high biodiversity).*
- *Financial scale: will vary by park. Private sector contribution approximately \$100,000 per year; community contributions (in-kind) valued at \$20,000 per year.*

The USAID NRM/EPIQ Program is a strong supporter of such partnerships. The Program asks, “What are the goals of the park?” In the case of ICDP parks, one goal is economic development of communities living in park buffer zones. The beneficiaries are to be local communities; thus, community conservation agreements (CCAs) ask local people to bear a small amount of management costs. The contribution is not in cash, but in labor for participatory mapping, voluntary patrols, and small infrastructure construction (e.g., fences). In exchange for this “cost,” CCAs contractually promise that the communities will receive a share of benefits from the park (e.g., the right to collect non-timber forest products; a share of user fees and gate entry fees).

We also ask, “Who threatens the park, or who would benefit by publicly reducing the threat it represents?” Similar to the user-fee issues above, this question targets profit-oriented operators: timber, mining, tourism. It is also applicable to non-timber forest product marketers (e.g., exporters of organic coffee or sustainably harvested rattan), pharmaceutical companies, and universities and the scientific research community. These represent constituent groups who together benefit from parks and/or have an interest in being good corporate citizens. Two examples receiving NRM/EPIQ Program support are the Friends of Kutai, a group of eight timber and mining operators in East Kalimantan, and the Bunaken dive operators partnership in North Sulawesi. Friends of Kutai contributed Rp. 1.5 billion in 1998 to a range of multi-stakeholder conservation management activities in Kutai National Park, an amount of money that allows park managers greater flexibility to address other concerns. In Bunaken, environmentally friendly dive operators have a marketing advantage to attract tourists. The partnership is promoting environmental awareness activities among

tourists and fishermen, and is funding installation of mooring buoys [which prevent damage to the reef caused by anchors.]

4.4. Debt-for-Nature Swaps

- *Applicability: parks with specific activities or features of interest to foreign donors or conservation investors (e.g., ICDP parks at Kerinci Seblat, Siberut, and Lore Lindu; parks with important species, such as orangutan in the parks on Kalimantan; large and undeveloped forest areas such as Kayan Mentarang and Lorentz).*
- *Financial scale: depending on structural arrangements, a typical swap might generate \$3 million per year paid into a trust fund over ten or more years; resultant interest would yield \$200,000+ annually for conservation activities.*

Debt-for-nature swaps go directly to the question of who benefits from the existence of national parks. As Table 7 shows, the global community benefits significantly in virtually all of the country's national parks; in some cases, the global community is virtually the only beneficiary. Debt swaps are way of placing the costs accordingly.

The NRM/EPIQ Program has studied the feasibility and explained the mechanics of debt swaps in detail (Moye, 1998), so we will only provide an overview here. Indonesia's economic crisis is in large part due to its huge external debt, approximately \$130 billion, to public and private creditors. As the country is struggling even to make interest payments on this debt, there is less funding for parks and even greater pressure to exploit the country's natural wealth. Debt swaps are an innovative response to this crisis, in that they enable developing countries to convert external debt obligations into increased support for conservation of natural resources. Since the first debt swap in 1987 in Bolivia, debt swaps have generated over \$2 billion for conservation and development activities in more than 30 countries. In a typical three-party swap, a conservation organization purchases commercial debt at a discount from face value or solicits debt donations from a creditor, then negotiates with the debtor (government or private sector) for cancellation of the debt. In exchange, the debtor commits to providing support for conservation activities.

Typically, the conditions of a swap demand that the debtor pays local currency on a regular basis into a trust fund overseen by multiple stakeholders (e.g., the host country, conservation investor or creditor, universities, NGOs). The trust fund ensures accountable, transparent,

and decentralized management (see 4.8 below for more details on trusts). With a trust, the *interest* goes toward regular conservation activities. Thus, using precedent swaps in other countries as a guide, an investor might buy \$35 million in debt at the discounted price of \$20 million. The investor would then negotiate repayment terms with Indonesia; for example, the government would pay \$2 million per year, in rupiah, into a targeted trust. A conservatively managed trust could easily generate 10 percent interest on this principal, or \$200,000 (i.e., more than the budget of most parks) for park management. Thus, the transaction is a “win-win” solution: the creditor would receive payment, tax breaks, and/or good publicity for its debt; the conservation investor would achieve its organizational goals; and Indonesia would eliminate debt and enjoy the benefits of improved conservation.

There is an misconception about debt-for-nature swaps that needs addressing, and that is that debt swaps are *not* the sale of Indonesian land to foreign interests and do *not* take away Indonesia’s sovereignty over its own territory. The PKA still manages its parks, and if anything, the debt swap allows the country greater fiscal autonomy: with a debt swap, Indonesia does not pay hard currency to a foreign creditor, but instead, “pays itself” by contributing to a trust fund that its own people oversee.

Finally, there is the issue of scale. Debt swaps have high transaction costs; therefore, the swap must be large enough to be worthwhile. A creditor agreeing to a large swap needs to have a big target – an especially large park or one with a well-known species. Moreover, creditors enjoy the publicity of a debt swap, and thus appreciate specificity; debt swaps are unlikely to occur if they are to be mixed with the PKA’s general budget pool.

4.5. Carbon Offsets through Joint Implementation

- *Applicability: parks with large forests or bordering large forestry operations (e.g., parks in Irian Jaya, Kalimantan, and Sumatra).*
- *Financial scale: based on precedents, approximately \$500,000.*

This mechanism addresses both threats (i.e., timber concessions) and beneficiaries (i.e., the global community). A global demand exists for the services tropical forests provide as carbon sinks. International agreements have placed limits on national emissions of carbon, a greenhouse gas which contributes to global climate change. Countries in turn place limits on

their specific emitters (e.g., a coal burning energy utility). Carbon emitters can meet these limits by altering their production methods (e.g., by switching to cleaner burning fuels), and they can also try to decrease the demand for their products (e.g., by promoting household energy efficiency). However, both of these options can be expensive relative to the amount of reduced carbon emitted. Thus, a third option is for carbon emitters to invest in “credits” which absorb their emissions. Tropical forests serve as the “offset” mechanism. “Joint implementation” refers to the technical assistance and funds that the carbon emitter provides to the managers of the tropical forest (Panayatou, 1994). One advantage of carbon offset/joint implementation arrangements is that the participants in the transaction are not limited to government actors. Private sector carbon emitters in developed countries, such as electric utilities, can work directly with private timber concessions in Indonesia [or with GOI agencies within DepHutBun.] Precedents for such efforts include the case where a power utility in New England purchased “credits” (i.e., the right to continue emissions) for several hundred thousand dollars. This money went toward the provision of technical assistance to a commercial logging operation in Malaysian Borneo.

The money generated by the purchase of “credits” can be spent in the target country for: (1) preservation of existing forests; (2) promotion of tree-planting and greening efforts; or (3) promotion of more sustainable, less damaging, conservation logging techniques. From the perspective of the carbon emitter, the first option does not buy much marginal benefit, for within national parks, logging should not be happening; outside of parks, in protected areas that do allow logging, preservation may just shift demand to a neighboring forest, again, netting no benefit. However, the second and third options allow a confluence of interests between emitters and Indonesia. The second option – greening – is applicable in parks with degraded land, such as Kutai National Park, which has suffered major fire damage. It is also applicable in degraded buffer zones or in the larger forest ecosystems surrounding parks, such as the area surrounding Bukit Baka Bukit Raya. The third option – conservation logging – is relevant in forest concessions next to parks and in buffer zones where communities have been given logging rights. To paraphrase Panayatou (1994), with conservation logging, Indonesia could continue to use its forest resources, only in a more efficient, cost-effective, and benign manner.

There are caveats to carbon offset/joint implementation. The emitter (e.g., the private utility in a foreign country) is “buying” a service – the carbon sink for its continued emissions. The carbon sink – the tropical forest – needs to be big enough to make the transaction worthwhile to the emitter, thus this mechanism is not applicable to smaller parks surrounded by urban

areas, such as those on Java and Bali. Also, the emitter needs to know that the sink is working, that regreening and conservation logging are occurring and absorbing the carbon emissions. Thus, emitters may expect independent monitoring and evaluation of the forestry operations.

4.6. Concessions for Park Management, or Quasi-Privatization

- *Applicability: parks with high sustainable use, established infrastructure, and clear goals (e.g., Gunung Gede Pangrango and Komodo).*
- *Financial scale: approximately \$200,000, or the annual budget of a park.*

Similar to concepts of self-financing and partnerships described above, one option is for the PKA to cede management responsibilities to an extra-governmental body. The PKA would *not* privatize a national asset such as a national park; rather, analogous to the current system of timber concessions, the PKA could grant a long-term (e.g., 10-20 year) tourism/research/educational concession to a stakeholder with a vested interest in the park's success. For example, an NGO or a for-profit tourism operator would manage the park, conduct conservation activities, *and* collect revenues for the services it provides to tourists, researchers, non-timber forest product collectors, and students. The concessionaire would use the revenues to pay for its continued activities, and would pay a fee to the PKA.

4.7. Conservation Trust Funds: A Mechanism for Both Funding and Management

- *Applicability: all parks.*
- *Financial scale: unlimited range.*

As a funding mechanism for parks, trust funds directly ask beneficiaries, whoever they may be, to bear some of the costs of park management. Trust funds can involve international donors and be on a major scale – for example, there are proposals for a Cendrawasih Trust with an endowment of several million dollars to be put forward by major multi-national companies and renowned research institutions. Trust funds can also be domestic and of a smaller scale – for example private citizens and local industries in Palu could endow a Lore Lindu Trust to protect the watershed that provides them with water for domestic, agricultural, and commercial uses.

Trust funds also allow for the transparent and accountable management of financial resources and conservation activities, and thus respond to conservation goals, which typically extend over long periods of time and require the cooperation of numerous stakeholders. Through endowment funds, revolving funds, or sinking funds, significant amounts of money are disbursed over a long period of time. This enables stakeholders to develop long-term conservation management visions; then they can take necessary steps to achieve that vision without being rushed by project or donor constraints. This may mean a substantial change in activities over time, from human resource development and training at the start of the initiative, then to buffer zone development to generate local support, and finally to biodiversity conservation and monitoring to measure success.

A conservation trust fund typically has multiple stakeholders on its board of directors, including government representatives, domestic and international technical experts, conservation NGOs, and civil society organizations. Such a board can ensure transparency and equity among stakeholders and can provide the high levels of scientific and socio-economic technical expertise necessary for guiding long-term conservation initiatives.

5. Implications and Conclusions

The alternative financing mechanisms presented in this paper is based on an incremental financing approach that focuses on conservation goals and matches beneficiaries with costs. The mechanisms are fundamentally decentralized and appropriate in this era of *reformasi*, for they look beyond the central government agencies of Jakarta as the provider of funds. Rather, funds can come from each of the stakeholders who benefit from Indonesia's national parks: the global community, the regions geographically surrounding the park, private sector operators, local communities, and individual users. Adoption of these mechanisms and this paradigm has implications for the PKA.

For the PKA to take advantage of these alternative financing mechanisms, it will require a cadre of staff in the near-term and long-term that may appear unusual for a conservation agency. In addition to the trained ecologists and environmental scientists who will help set conservation goals, the PKA will need environmental economists to conduct resource valuations in parks and cost-benefit analyses of resource use scenarios. The PKA will also need experts in public administration and industrial engineering who can create an organizational design that allows for adaptive and cooperative management between park staff units and the many relevant local stakeholders. There will be the need for people with degrees in business administration and finance, and the need for people with experience in the design of trusts, who can analyze financial needs and create the architecture for sustainable financial management. There will also be the need for conservation educators and awareness builders and for trainers and facilitators.

All of the mechanisms require a commitment to monitoring and evaluation. The continued contribution of funds from the beneficiaries described here is dependent upon the success of conservation efforts. Monitoring and evaluation is also a critical element to adaptive management, allowing park managers to know if they are moving toward their conservation goals.

From the institutional standpoint of the PKA, the major caveat with these mechanisms is the devolution of decision-making and management responsibility away from Jakarta. This is a serious change in the culture of any bureaucracy, not just Indonesia; but, if the costs of parks are to be borne by beneficiaries, those beneficiaries should also enjoy the right to participate in decision-making.

Finally, alternative financing mechanisms, by themselves, will not resolve all financial and organizational issues for the PKA. New funds must complement, and not replace, existing resources. This means the PKA must strive for efficiency gains through better trained staff and through more rational deployment of staff across the archipelago. Ultimately, this requires a systemic approach – what are the overall goals of national park system and how do these goals complement Indonesia’s economic development objectives. *Krismon* may have forced that question on to the national agenda, but *reformasi* will allow Indonesia to find the answer.

Statistical Annex

Tables derived from DATANAS 1.0:

Table A: Planned Budgets by Biogeographic Area and Component, 1993 - 1999 (US \$)

Table B: Percentage Allocation of Planned Budgets by Biogeographic Area and Component, 1993 – 1999

Table C: Allocation of Funds by Activity Area, 1993 - 1999

Table A
Planned Budgets by Biogeographic Area and Component, 1993 - 1999 (US \$)

Budget Year	Location	Development Budget	Routine Budget	BLN	DR	IHH	Total
1993/1994	Irian Jaya	85,305					85,305
	Jawa dan Bali	930,368	422,812		145,947	308,755	1,807,882
	Kalimantan	171,038	66,419	152,462		57,297	447,216
	Maluku	54,714					54,714
	Nusa Tenggara	93,100	73,191			65,120	231,411
	Sulawesi	370,995	76,165	237,163		75,824	760,146
	Sumatra	1,214,584	271,884	157,767	57,160	174,263	1,875,658
	Total	\$2,920,104	\$910,471	\$547,392	\$203,107	\$681,258	\$5,262,332
Percent	55.49%	17.30%	10.40%	3.86%	12.95%		
1994/1995	Irian Jaya	160,239					160,239
	Jawa dan Bali	1,117,119	567,590		685,922		2,370,630
	Kalimantan	266,750	122,147	37,157	107,629		533,683
	Maluku	58,054			42,345		100,399
	Nusa Tenggara	247,057	97,927		97,838		442,822
	Sulawesi	442,719	108,353	241,509	105,465		898,045
	Sumatra	1,213,205	345,107	354,055	482,141		2,394,508
	Total	\$3,505,143	\$1,241,123	\$632,720	\$1,521,339		\$6,900,326
Percent	50.80%	17.99%	9.17%	22.05%	0.00%		
1995/1996	Irian Jaya	128,317			84,006		212,323
	Jawa dan Bali	1,155,523	646,226	801,216	623,142	470,462	3,696,569
	Kalimantan	337,976	166,354	93,562	154,790	116,267	868,949
	Maluku				56,000		56,000
	Nusa Tenggara	167,151	111,962		172,955	95,712	547,780
	Sulawesi	843,149	123,593	324,425	23,672	78,450	1,393,288
	Sumatra	1,146,103	422,182	603,684	112,470	278,360	2,562,799
	Total	\$3,778,219	\$1,470,317	\$1,822,888	\$1,227,034	\$1,039,251	\$9,337,709
Percent	40.46%	15.75%	19.52%	13.14%	11.13%		

1996/1997	Irian Jaya	160,036					160,036
	Jawa dan Bali	1,268,008	766,155		908,684	629,698	3,572,545
	Kalimantan	506,436	196,979	233,051	50,686	121,131	1,108,284
	Nusa Tenggara	178,237	132,863		126,965	98,794	536,859
	Sulawesi	824,996	146,611	290,499	32,525	126,567	1,421,198
	Sumatra	1,240,342	500,565	528,937	33,898	264,253	2,567,995
	Total	\$4,178,056	\$1,743,173	\$1,052,487	\$1,152,759	\$1,240,443	\$9,366,918
Percent	44.60%	18.61%	11.24%	12.31%	13.24%		
1997/1998	Irian Jaya	122,504			14,680		137,184
	Jawa dan Bali	1,170,698	834,310		406,984	589,403	3,001,396
	Kalimantan	517,094	177,070	505,946	8,680	121,817	1,330,608
	Nusa Tenggara	168,654	156,129		70,230	92,978	487,991
	Sulawesi	732,569	160,999		138,288	112,448	1,144,305
	Sumatra	1,445,547	524,262	1,254,114	3,000	253,112	3,480,035
	Total	\$4,157,068	\$1,852,770	\$1,760,060	\$641,862	\$1,169,758	\$9,581,519
Percent	43.39%	19.34%	18.37%	6.70%	12.21%		
1998/1999	Irian Jaya	33,333	56,403		35,323	20,805	145,864
	Jawa dan Bali	280,000	464,196		176,540	259,375	1,180,111
	Kalimantan	150,022	147,304	206,507		75,314	579,146
	Maluku		26,415		23,786	11,895	62,096
	Nusa Tenggara	40,400	112,680		102,405	56,179	311,665
	Sulawesi	187,067	198,235		48,464	104,525	538,291
	Sumatra	298,760	308,896	912,242	85,113	191,381	1,796,391
Total	\$989,582	\$1,314,128	\$1,118,748	\$471,632	\$719,473	\$4,613,563	
Percent	21.45%	28.48%	24.25%	10.22%	15.59%		

Table B: Percentage Allocation of Planned Budgets by Biogeographic Area and Component, 1993 – 1999

Budget Year	Biogeographic Location	Development Budget	Routine Budget	BLN	DR	IHH	Total
1993/1994	Irian Jaya	2.92					1.62
	Jawa dan Bali	31.86	46.44		71.86	45.32	34.36
	Kalimantan	5.86	7.29	27.85		8.41	8.50
	Maluku	1.87					1.04
	Nusa Tenggara	3.19	8.04			9.56	4.40
	Sulawesi	12.70	8.37	43.33		11.13	14.45
	Sumatra	41.59	29.86	28.82	28.14	25.58	35.64
	Total	100%	100%	100%	100%	100%	100%
1994/1995	Irian Jaya	4.57					2.32
	Jawa dan Bali	31.87	45.73		45.09		34.36
	Kalimantan	7.61	9.84	5.87	7.07		7.73
	Maluku	1.66			2.78		1.45
	Nusa Tenggara	7.05	7.89		6.43		6.42
	Sulawesi	12.63	8.73	38.17	6.93		13.01
	Sumatra	34.61	27.81	55.96	31.69		34.70
	Total	100%	100%	100%	100%	100%	100%
1995/1996	Irian Jaya	3.40			6.85		2.27
	Jawa dan Bali	30.58	43.95	43.95	50.78	45.27	39.59
	Kalimantan	8.95	11.31	5.13	12.61	11.19	9.31
	Maluku				4.56		0.60
	Nusa Tenggara	4.42	7.61		14.10	9.21	5.87
	Sulawesi	22.32	8.41	17.80	1.93	7.55	14.92
	Sumatra	30.33	28.71	33.12	9.17	26.78	27.45
	Total	100%	100%	100%	100%	100%	100%
1996/1997	Irian Jaya	3.83					1.71
	Jawa dan Bali	30.35	43.95		78.83	50.76	38.14
	Kalimantan	12.12	11.30	22.14	4.40	9.77	11.83
	Nusa Tenggara	4.27	7.62		11.01	7.96	5.73
	Sulawesi	19.75	8.41	27.60	2.82	10.20	15.17
	Sumatra	29.69	28.72	50.26	2.94	21.30	27.42
	Total	100%	100%	100%	100%	100%	100%
	1997/1998	Irian Jaya	2.95			2.29	
Jawa dan Bali		28.16	45.03		63.41	50.39	31.32
Kalimantan		12.44	9.56	28.75	1.35	10.41	13.89
Nusa Tenggara		4.06	8.43		10.94	7.95	5.09
Sulawesi		17.62	8.69		21.54	9.61	11.94
Sumatra		34.77	28.30	71.25	0.47	21.64	36.32
Total		100%	100%	100%	100%	100%	100%
1998/1999		Irian Jaya	3.37	4.29		7.49	2.89
	Jawa dan Bali	28.29	35.32		37.43	36.05	25.58
	Kalimantan	15.16	11.21	18.46		10.47	12.55
	Maluku		2.01		5.04	1.65	1.35
	Nusa Tenggara	4.08	8.57		21.71	7.81	6.76
	Sulawesi	18.90	15.08		10.28	14.53	11.67
	Sumatra	30.19	23.51	81.54	18.05	26.60	38.94
	Total	100%	100%	100%	100%	100%	100%

Table C
Allocation of Funds by Activity Area, 1993 - 1999

Budget Year	Activity	Rupiah (nominal)	Rupiah (real)	U.S. Dollars
1993/1994	<i>Administrasi Proyek</i> (project administration)	633,402,000	633,402,000	281,512
	<i>Operasi dan Pemeliharaan</i> (operation and maintenance)	247,311,000	247,311,000	109,916
	<i>Pembangunan Gedung</i> (construction of buildings)	1,018,606,000	1,018,606,000	452,714
	<i>Pembangunan Jaringan</i> (construction of roads, paths, etc.)	134,678,000	134,678,000	59,857
	<i>Pembangunan Prasarana Lainnya</i> (construction of other facilities)	846,591,000	846,591,000	376,263
	<i>Pembangunan/Perbaikan Prasarana</i> (facility repair)	508,647,000	508,647,000	226,065
	<i>Pembinaan</i> (maintenance - general)	418,476,000	418,476,000	185,989
	<i>Penataan Kawasan dan Lingkungan Hidup</i> (park establishment)	1,399,064,000	1,399,064,000	621,806
	<i>Pendidikan dan Pelatihan</i> (education and training)	438,997,000	438,997,000	195,110
	<i>Pengadaan Bahan Pendukung Fungsional</i> (procurement - materials)	125,195,000	125,195,000	55,642
	<i>Pengadaan Buku dan Bahan Cetak</i> (procurement - books and printing materials)	27,379,000	27,379,000	12,168
	<i>Pengadaan dan Penyiapan Lahan</i> (procurement and preparation of land)	262,825,000	262,825,000	116,811
	<i>Pengadaan Kendaraan Operasional</i> (procurement - vehicles)	401,678,000	401,678,000	178,524
	<i>Pengadaan Peralatan dan Sarana Gedung</i> (procurement - office equipment)	338,025,000	338,025,000	150,233
	<i>Pengadaan Peralatan Fungsional</i> (procurement - equipment)	480,946,000	480,946,000	213,754
	<i>Pengawasan, Pemantauan, dan Pengendalian</i> (monitoring, evaluation, and control)	231,885,000	231,885,000	103,060
	<i>Penyebarluasan Informasi</i> (information dissemination)	107,664,000	107,664,000	47,851
	<i>Perawatan Gedung</i> (maintenance - buildings)	68,200,000	68,200,000	30,311
	<i>Perawatan Prasarana Lainnya</i> (maintenance - other facilities)	114,720,000	114,720,000	50,987
	<i>Persiapan Perencanaan Proyek</i> (project preparation and planning)	344,000,000	344,000,000	152,889
<i>Survei</i> (surveys)	21,420,000	21,420,000	9,520	
<i>Transfer dan Bantuan</i> (transfers and assistance)	30,000,000	30,000,000	13,333	
	Total	Rp8,199,709,000	Rp8,199,709,000	\$3,644,315
1994/1995	<i>Administrasi Proyek</i> (project administration)	1,261,092,000	1,196,481,956	548,301
	<i>Operasi dan Pemeliharaan</i> (operation and maintenance)	44,352,000	42,079,696	19,283
	<i>Pembangunan Gedung</i> (construction of buildings)	2,068,373,000	1,962,403,197	899,293
	<i>Pembangunan Jaringan</i> (construction of roads, paths, etc.)	20,800,000	19,734,345	9,043
	<i>Pembangunan Prasarana Lainnya</i> (construction of other facilities)	298,720,000	283,415,556	129,878
	<i>Pembangunan/Perbaikan Prasarana</i> (facility repair)	723,007,000	685,964,886	314,351
	<i>Pembinaan</i> (maintenance - general)	433,736,000	411,514,226	188,581
	<i>Penataan Kawasan dan Lingkungan Hidup</i> (park establishment)	1,242,336,000	1,178,686,890	540,146
	<i>Pendidikan dan Pelatihan</i> (education and training)	293,495,000	278,458,250	127,607
	<i>Pengadaan Bahan Pendukung Fungsional</i> (procurement - materials)	14,000,000	13,282,732	6,087
	<i>Pengadaan Buku dan Bahan Cetak</i> (procurement - books and printing materials)	129,780,000	123,130,928	56,426
	<i>Pengadaan dan Penyiapan Lahan</i> (procurement and preparation of land)	160,000,000	151,802,654	69,565
	<i>Pengadaan Kendaraan Berat</i> (procurement - heavy equipment)	673,500,000	638,994,298	292,826
	<i>Pengadaan Kendaraan Operasional</i> (procurement - vehicles)	126,200,000	119,734,344	54,870
	<i>Pengadaan Peralatan dan Sarana Gedung</i> (procurement - office equipment)	932,912,000	885,115,737	405,614
	<i>Pengadaan Peralatan Fungsional</i> (procurement - equipment)	494,127,000	468,811,189	214,838
	<i>Pengawasan, Pemantauan, dan Pengendalian</i> (monitoring, evaluation, and control)	553,461,000	525,105,305	240,635
	<i>Penyebarluasan Informasi</i> (information dissemination)	626,054,000	593,979,119	272,197
	<i>Perawatan Gedung</i> (maintenance - buildings)	455,160,000	431,840,601	197,896
	<i>Perawatan Prasarana Lainnya</i> (maintenance - other facilities)	69,434,000	65,876,659	30,189
<i>Persiapan Perencanaan Proyek</i> (project preparation and planning)	1,960,698,000	1,860,244,755	852,477	
	Total	Rp12,581,237,000	Rp11,936,657,322	\$5,470,103

Table C
Allocation of Funds by Activity Area, 1993 - 1999

Budget Year	Activity	Rupiah (nominal)	Rupiah (real)	U.S. Dollars
1995/1996	<i>Administrasi Proyek</i> (project administration)	1,007,386,000	856,620,759	432,355
	<i>Operasi dan Pemeliharaan</i> (operation and maintenance)	163,170,000	138,750,002	70,030
	<i>Pembangunan Gedung</i> (construction of buildings)	3,024,054,000	2,571,474,523	1,297,877
	<i>Pembangunan Jaringan</i> (construction of roads, paths, etc.)	392,400,000	333,673,474	168,412
	<i>Pembangunan Prasarana Lainnya</i> (construction of other facilities)	381,947,000	324,784,868	163,926
	<i>Pembangunan/Perbaikan Prasarana</i> (facility repair)	1,963,285,000	1,669,460,056	842,612
	<i>Pembinaan</i> (maintenance - general)	1,199,530,000	1,020,008,517	514,820
	<i>Penataan Kawasan dan Lingkungan Hidup</i> (park establishment)	993,539,000	844,846,099	426,412
	<i>Pendidikan dan Pelatihan</i> (education and training)	159,266,000	135,430,274	68,355
	<i>Pengadaan Bahan Pendukung Fungsional</i> (procurement - materials)	45,000,000	38,265,307	19,313
	<i>Pengadaan Buku dan Bahan Cetak</i> (procurement - books and printing materials)	231,050,000	196,471,091	99,163
	<i>Pengadaan dan Penyiapan Lahan</i> (procurement and preparation of land)	235,500,000	200,255,105	101,073
	<i>Pengadaan Kendaraan Berat</i> (procurement - heavy equipment)	351,000,000	298,469,392	150,644
	<i>Pengadaan Kendaraan Operasional</i> (procurement - vehicles)	508,800,000	432,653,067	218,369
	<i>Pengadaan Peralatan dan Sarana Gedung</i> (procurement - office equipment)	1,506,325,000	1,280,888,622	646,491
	<i>Pengadaan Peralatan Fungsional</i> (procurement - equipment)	542,380,000	461,207,489	232,781
	<i>Pengawasan, Pemantauan, dan Pengendalian</i> (monitoring, evaluation, and control)	766,412,000	651,710,893	328,932
	<i>Penyebarluasan Informasi</i> (information dissemination)	992,714,000	844,144,569	426,058
	<i>Perawatan Gedung</i> (maintenance - buildings)	418,175,000	355,590,991	179,474
	<i>Perawatan Prasarana Lainnya</i> (maintenance - other facilities)	63,400,000	53,911,565	27,210
<i>Persiapan Perencanaan Proyek</i> (project preparation and planning)	964,236,000	819,928,582	413,835	
	Total	Rp15,909,569,000	Rp13,528,545,244	\$6,828,141
1996/1997	<i>Administrasi Proyek</i> (project administration)	1,053,167,000	832,543,083	446,257
	<i>Operasi dan Pemeliharaan</i> (operation and maintenance)	35,950,000	28,418,972	15,233
	<i>Pembangunan Gedung</i> (construction of buildings)	1,302,192,000	1,029,400,791	551,776
	<i>Pembangunan Jaringan</i> (construction of roads, paths, etc.)	325,065,000	256,968,379	137,739
	<i>Pembangunan Prasarana Lainnya</i> (construction of other facilities)	59,200,000	46,798,419	25,085
	<i>Pembangunan/Perbaikan Prasarana</i> (facility repair)	896,688,000	708,844,269	379,953
	<i>Pembinaan</i> (maintenance - general)	1,412,702,000	1,116,760,474	598,603
	<i>Penataan Kawasan dan Lingkungan Hidup</i> (park establishment)	2,631,843,000	2,080,508,300	1,115,188
	<i>Pendidikan dan Pelatihan</i> (education and training)	11,835,000	9,355,731	5,015
	<i>Penelitian</i> (research)	20,080,000	15,873,518	8,508
	<i>Pengadaan Bahan Pendukung Fungsional</i> (procurement - materials)	7,670,000	6,063,241	3,250
	<i>Pengadaan Buku dan Bahan Cetak</i> (procurement - books and printing materials)	154,309,000	121,983,399	65,385
	<i>Pengadaan dan Penyiapan Lahan</i> (procurement and preparation of land)	73,280,000	57,928,854	31,051
	<i>Pengadaan Kendaraan Berat</i> (procurement - heavy equipment)	185,000,000	146,245,059	78,390
	<i>Pengadaan Kendaraan Operasional</i> (procurement - vehicles)	559,000,000	441,897,233	236,864
	<i>Pengadaan Peralatan dan Sarana Gedung</i> (procurement - office equipment)	1,058,700,000	836,916,996	448,602
	<i>Pengadaan Peralatan Fungsional</i> (procurement - equipment)	569,374,000	450,098,024	241,260
	<i>Pengawasan, Pemantauan, dan Pengendalian</i> (monitoring, evaluation, and control)	2,125,335,000	1,680,106,719	900,566
	<i>Pengembangan Sistem Informasi</i> (information system development)	364,103,000	287,828,458	154,281
	<i>Penyebarluasan Informasi</i> (information dissemination)	118,400,000	93,596,838	50,169
<i>Perawatan Gedung</i> (maintenance - buildings)	327,109,000	258,584,190	138,606	
<i>Perawatan Prasarana Lainnya</i> (maintenance - other facilities)	208,993,000	165,211,858	88,556	
<i>Persiapan Perencanaan Proyek</i> (project preparation and planning)	1,128,578,000	892,156,522	478,211	
	Total	Rp14,628,573,000	Rp11,564,089,328	\$6,198,548

Table C
Allocation of Funds by Activity Area, 1993 - 1999

Budget Year	Activity	Rupiah (nominal)	Rupiah (real)	U.S. Dollars
1997/1998	<i>Administrasi Proyek</i> (project administration)	778,416,000	517,219,934	311,366
	<i>Operasi dan Pemeliharaan</i> (operation and maintenance)	191,633,000	127,330,897	76,653
	<i>Pembangunan Gedung</i> (construction of buildings)	814,708,000	541,334,219	325,883
	<i>Pembangunan Jaringan</i> (construction of roads, paths, etc.)	217,652,000	144,619,269	87,061
	<i>Pembangunan Prasarana Lainnya</i> (construction of other facilities)	494,315,000	328,448,505	197,726
	<i>Pembangunan/Perbaikan Prasarana</i> (facility repair)	1,021,594,000	678,800,000	408,638
	<i>Pembinaan</i> (maintenance - general)	1,474,007,000	979,406,645	589,603
	<i>Penataan Kawasan dan Lingkungan Hidup</i> (park establishment)	2,712,755,000	1,802,495,017	1,085,102
	<i>Pendidikan dan Pelatihan</i> (education and training)	136,178,000	90,483,721	54,471
	<i>Pengadaan Bahan Pendukung Fungsional</i> (procurement - materials)	179,354,000	119,172,093	71,742
	<i>Pengadaan Buku dan Bahan Cetakan</i> (procurement - books and printing materials)	342,807,000	227,778,738	137,123
	<i>Pengadaan Kendaraan Berat</i> (procurement - heavy equipment)	243,000,000	161,461,794	97,200
	<i>Pengadaan Kendaraan Operasional</i> (procurement - vehicles)	577,600,000	383,787,375	231,040
	<i>Pengadaan Peralatan dan Sarana Gedung</i> (procurement - office equipment)	593,442,000	394,313,621	237,377
	<i>Pengadaan Peralatan Fungsional</i> (procurement - equipment)	1,138,308,000	756,350,831	455,323
	<i>Pengawasan, Pemantauan, dan Pengendalian</i> (monitoring, evaluation, and control)	1,983,792,000	1,318,134,219	793,517
	<i>Penyebarluasan Informasi</i> (information dissemination)	1,734,324,000	1,152,374,751	693,730
	<i>Perawatan Gedung</i> (maintenance - buildings)	339,994,000	225,909,635	135,998
	<i>Perawatan Prasarana Lainnya</i> (maintenance - other facilities)	28,800,000	19,136,213	11,520
	<i>Persiapan Perencanaan Proyek</i> (project preparation and planning)	242,376,000	161,047,176	96,950
<i>Survei</i> (surveys)	129,117,000	85,792,027	51,647	
<i>Transfer dan Bantuan</i> (transfers and assistance)	44,483,000	29,556,811	17,793	
	Total	Rp15,418,655,000	Rp10,244,953,488	\$6,167,462
1998/1999	<i>Administrasi Proyek</i> (project administration)	1,290,365,000	431,560,201	172,049
	<i>Operasi dan Pemeliharaan</i> (operation and maintenance)	38,200,000	12,775,920	5,093
	<i>Pembangunan Gedung</i> (construction of buildings)	401,146,000	134,162,542	53,486
	<i>Pembangunan Jaringan</i> (construction of roads, paths, etc.)	285,250,000	95,401,338	38,033
	<i>Pembangunan Prasarana Lainnya</i> (construction of other facilities)	43,750,000	14,632,107	5,833
	<i>Pembangunan/Perbaikan Prasarana</i> (facility repair)	597,477,000	199,825,084	79,664
	<i>Pembinaan</i> (maintenance - general)	789,668,000	264,103,010	105,289
	<i>Penataan Kawasan dan Lingkungan Hidup</i> (park establishment)	1,931,624,000	646,028,094	257,550
	<i>Pendidikan dan Pelatihan</i> (education and training)	20,500,000	6,856,187	2,733
	<i>Penelitian</i> (research)	123,217,000	41,209,699	16,429
	<i>Pengadaan Bahan Pendukung Fungsional</i> (procurement - materials)	45,380,000	15,177,258	6,051
	<i>Pengadaan Buku dan Bahan Cetakan</i> (procurement - books and printing materials)	25,000,000	8,361,204	3,333
	<i>Pengadaan Kendaraan Berat</i> (procurement - heavy equipment)	65,704,000	21,974,582	8,761
	<i>Pengadaan Kendaraan Operasional</i> (procurement - vehicles)	745,850,000	249,448,161	99,447
	<i>Pengadaan Peralatan dan Sarana Gedung</i> (procurement - office equipment)	1,143,459,000	382,427,759	152,461
	<i>Pengadaan Peralatan Fungsional</i> (procurement - equipment)	507,945,000	169,881,271	67,726
	<i>Pengawasan, Pemantauan, dan Pengendalian</i> (monitoring, evaluation, and control)	2,655,577,000	888,152,843	354,077
	<i>Penyebarluasan Informasi</i> (information dissemination)	489,522,000	163,719,732	65,270
	<i>Perawatan Gedung</i> (maintenance - buildings)	187,538,000	62,721,739	25,005
	<i>Perawatan Prasarana Lainnya</i> (maintenance - other facilities)	22,800,000	7,625,418	3,040
<i>Persiapan Perencanaan Proyek</i> (project preparation and planning)	1,966,476,000	657,684,281	262,197	
<i>Survei</i> (surveys)	13,300,000	4,448,161	1,773	
<i>Transfer dan Bantuan</i> (transfers and assistance)	68,000	22,742	9	
	Total	Rp13,389,816,000	Rp4,478,199,331	\$1,785,309

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