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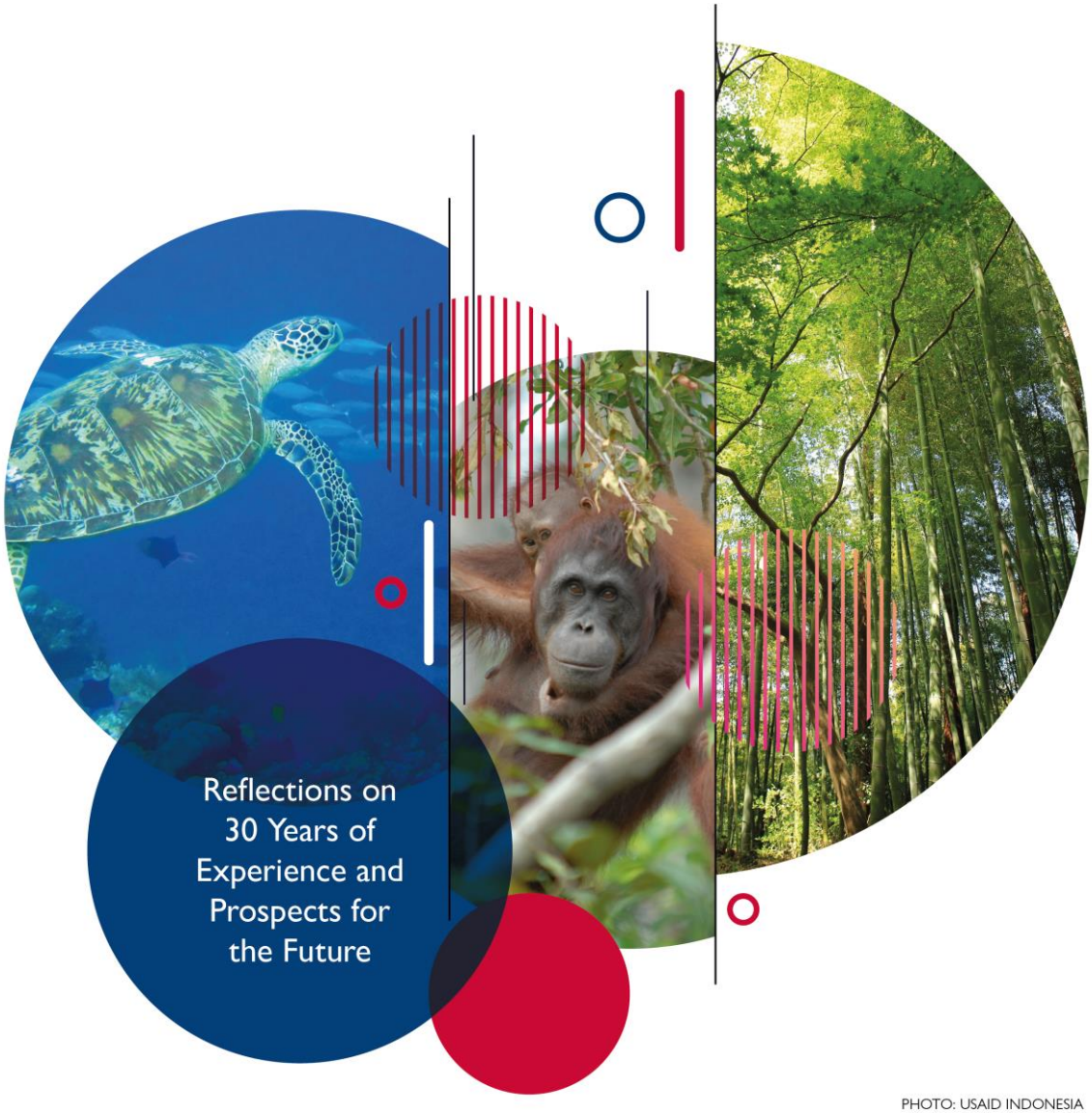
A RETROSPECTIVE OF THE USAID/INDONESIA ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT PROGRAM



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Reflections on 30 Years of Experience and Prospects for the Future

June 2019

Drafted by a team led by James J. Tarrant under Project No. 610900.01-500-03-11: Indonesia Monitoring and Evaluation Support Project.

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FOREWORD

When I think of Indonesia, I think of unparalleled diversity. I think of iconic flora and fauna, both on land and in the sea. To the casual observer, Indonesia means tropical beaches, rainforests, a countryside lush and alive with active volcanoes and rich agriculture. To the trained scientific eye, it means all of this and so much more: it is biological megadiversity.

Rivalled only by the Amazon in terms of sheer number of species, Indonesia's forests and oceans are home to plant and animal life found nowhere else on earth. Their richness and significance to human prosperity makes their sustainability a matter of global importance. If Indonesia's natural resources are degraded or depleted, the ecological and economic consequences would ripple beyond national and regional borders—to the detriment of the entire world.

For the past 30 years, the United States has supported Indonesia's commitment to natural resource management and environmental protection. Together, we have catalyzed changes in policy that have brought citizen participation in conservation to the center stage, boosting livelihoods and helping communities save the resources they depend on. Full of potential for replication, our shared successes toward democratized, community-based natural resources management have been the key to lasting change. One example is our recent work minimizing threats to biodiversity loss in buffer zones of national parks. We support coffee production through local cooperatives that co-manage these critical lands, which also house endangered orangutans and other megafauna. As Indonesia has grown more self-reliant in advancing its own solutions to address these challenges, the likelihood that current and future generations will continue to benefit has risen exponentially.

Our lasting hope for a brighter future is born from these joint efforts, and this retrospective reflects on what we have achieved together and prospects for the future—when Indonesia can fully plan, finance and implement its own natural resources management effectively, inclusively and with accountability. We are proud to be Indonesia's partner of choice on its conservation journey and remain committed to providing the technical expertise and partnership Indonesia needs to realize its vision for self-reliance.

I'm pleased to share this 30-year retrospective report, particularly given that 2019 marks the 70th anniversary of diplomatic relations between our two countries. Together, we have enhanced the prosperity of Indonesians, Americans and the entire Indo-Pacific region.

Erin E. Mckee
USAID Indonesia Mission Director

ABBREVIATIONS AND ACRONYMS

AMAN	*Aliansi Masyarakat Adat Nusantara* (Indonesian Customary Rights Communities Alliance)
ARD	Associates in Rural Development
Bappeda	*Badan Perencanaan Pembangunan Daerah* (Regional Development Planning Agency – province or district)
Bappenas	*Badan Perencanaan Pembangunan Nasional* (National Development Planning Agency)
BCN	Biodiversity Conservation Network
BIJAK	*Bangun Indonesia untuk Jaga Alam demi Keberlanjutan* (Build Indonesia to Take Care of Nature for Sustainability [Project])
BKSDA	*Balai Konservasi Sumber Daya Alam* (Provincial/District Conservation of Natural Resources Center)
BLUD	*Badan Layanan Umum Daerah* (Local Government Public Service Agency)
BOSF	Borneo Orangutan Survival Foundation
BP-HLSW	*Badan Pengelola Hutan Lindung Sungai Wain* (Sungai Wain Protection Forest Management Board)
BRG	*Badan Restorasi Gambut* (Peatland Restoration Agency)
BSP	Biodiversity Support Program
CBNRM	Community-Based Natural Resources Management
CCLA	Community Conservation and Livelihood Agreement
CDCS	Country Development Cooperation Strategy
CDSS	Country Development Strategy Statement
CI	Conservation International
CIFOR	Center for International Forestry Research
CLA	Collaborating, Learning and Adapting
CMMP	Conservation Management and Monitoring Plan
COREMAP	Coral Reef Rehabilitation and Management Project
CRC	Coastal Resources Center (part of URI)
CRMP	Coastal Resources Management Program (also known as *Mitra Pesisir*)
CSO	Civil Society Organization
CTI	Coral Triangle Initiative

CTSP	Coral Triangle Support Project
DAI	Development Alternatives Incorporated
DBH	Diameter at Breast Height
DKP	*Dinas Kelautan dan Perikanan* (Provincial Marine and Fisheries Service Agency)
DRG	Democracy, Rights and Governance
DSS	Decision Support System
EAFM	Ecosystem Approach to Fisheries Management
EBM	Ecosystem-Based Management
E-KKP3K	*Evaluasi Efektivitas Pengelolaan Kawasan Konservasi Perairan, Pesisir dan Pulau-Pulau Kecil* (Technical Guidelines for Evaluating the Management Effectiveness of Aquatic, Coastal, and Small Island Conservation Areas)
EPIQ	Environmental Policy and Institutional Strengthening Indefinite Quantity (Contract)
ESP	Environmental Services Program
FAA	Foreign Assistance Act
FFI	Flora and Fauna International
FKKM	*Forum Komunikasi Kehutanan Masyarakat* (Communication Forum on Community Forestry)
FMA	Fisheries Management Area
FPIC	Free, Prior, and Informed Consent
FSC	Forest Stewardship Council
FSN	Foreign Service National
GEGPP	Green Economic Growth Program for Papua Province
GIS	Geographical Information System
GOI	Government of Indonesia
HOCRU	Human Orangutan Conflict Response Unit
HPH	*Hak Pengusahaan Hutan* (Forest Concession License)
IAA	Interagency Agreement
I-CATCH	Indonesia Climate Adaptation Tool for Coastal Habitats
ICM	Integrated Coastal Management
ICRAF	International Center for Research on Agroforestry
ICZM	Integrated Coastal Zone Management
IFACS	Indonesia Forestry and Climate Support

I-FISH	Indonesia Fisheries Information System
IGGI	Inter-Governmental Group on Indonesia
IIEF	Indonesian International Education Foundation
IMACS	Indonesia Marine and Climate Support
IMF	International Monetary Fund
IPB	*Institut Pertanian Bogor* (Bogor Agricultural Institute)
IRG	International Resources Group
IUUF	Illegal, Unreported, and Unregulated Fishing
KEHATI	*[Yayasan] Keanekaragaman Hayati Indonesia* (Indonesia Biodiversity Foundation)
KKJI	*Konservasi Kawasan dan Jenis Ikan* (Conservation of Fish Areas and Species Agency)
KLHS	*Kajian Lingkungan Hidup Strategis* (Strategic Environmental Assessment)
KSDAE	*Konservasi Sumber Daya Alam Ekosistem* (Ecosystems and Natural Resource Conservation, Directorate General)
KUBK	*Kelompok Usaha Bersama Karet (*Rubber Farmer Business Model)
KWPLH	*Kawasan Wisata Pendidikan dan Lingkungan Hidup* (Environmental Education Tourism Zone)
LATIN	*Lembaga Alam Tropika Indonesia* (Indonesia Tropical Forest Institute)
LCP	Landscape Conservation Plan
LEDS	Low Emission Development Strategy
LKMD	*Lembaga Ketahanan Masyarakat Desa* (Village Council)
LSM	Landscape-specific Situation Model
MAJU	Empowering Access to Justice (Project)
MCD	Minimum Cutting Diameter
MESP	Monitoring and Evaluation Support Project
MMAF	Ministry of Marine Affairs and Fisheries
MNP	Marine National Park
MOEF	Ministry of Environment and Forestry
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MPAG	Marine Protected Area Governance (Project)
MRP	Marine Resources Program
MSF	Multi-stakeholder Forum

MSP	Marine Spatial Planning
NGO	Non-governmental Organization
NOAA	National Oceanographic and Atmospheric Administration (U.S.)
NRM	Natural Resource Management
NRMP	Natural Resource Management Project
NSWA	North Sulawesi Watersports Association
OCSP	Orangutan Conservation Services Program
ODA	Official Development Assistance
PDAM	Drinking Water Public Utilities
PEA	Political Economy Analysis
PeFoR	People, Forest, and Reefs Program
PGIS	Participatory Geographic Information System
PKI	*Partai Komunis Indonesia* (Indonesian Communist Party)
PMP	Performance Monitoring Plan
ProRep	*Program Representasi*
RAFT	Responsible Asia Forestry and Trade
RDMA	Regional Development Mission for Asia (USAID)
REDD+	Reduced Emissions from Deforestation and Forest Degradation, including conservation, sustainable management of forests, and enhancement of forest carbon stocks
RIL	Reduced Impact Logging
RIL-C	Reduced Impact Logging for Climate Change Mitigation
RTRW	*Rencana Tata Ruang Wilayah* (Regional Spatial Plan)
SCAA	Sustainable Cooperative Agribusiness Alliance
SDI	Spatial Data Infrastructure
SEA	Sustainable Ecosystems Advanced (Project)
SIMTARU	*Sistem Informasi Manajemen Tata Ruang* (Spatial Planning Management Unit)
SNAPPER	Supporting Nature and People – Partnership for Enduring Resources
SOW	Statement of Work
SPP	Sea Partnership Program
SWPF	Sungai Wain Protection Forest
tCO2e	Tons of carbon dioxide equivalent

TFCA	Tropical Forest Conservation Act
TFF	Tropical Forestry Foundation
TNC	The Nature Conservancy
TOC	Theory of Change
TPTI	*Tebang Pilih Tanam Indonesia* (Selective Cutting and Replanting System)
UP-HLSW	*Unit Pelaksana Hutan Lindung Sungai Wain* (Sungai Wain Protection Forest Implementation Unit)
UPTD	*Unit Pelaksana Teknis Daerah* (Regional Technical Management Unit)
URI	University of Rhode Island
URI/CRC	University of Rhode Island Coastal Resources Center
US	United States
USAID	United States Agency for International Development
USDOI	United States Department of the Interior
USFS	United States Forest Service
VCS	Verified Carbon Standard
WCS	Wildlife Conservation Society
WPP	*Wilayah Pengelolaan Perikanan* (Fisheries Management Zone)
WWF	World Wildlife Fund
YOSL-OIC	Yayasan Orangutan Sumatera Lestari-Orangutan Information Centre

EXECUTIVE SUMMARY

In1986, the U.S. Congress amended the Foreign Assistance Act requiring development assistance funds to consider conservation of tropical forests and biodiversity. The following year, Congress established a directive to use a portion of these funds for biodiversity conservation. USAID/Indonesia first included biodiversity conservation and natural resource management goals in its 1988 Country Development Strategy Statement. USAID/Indonesia's Natural Resource Management (NRM) Program was thus born. From its first project until now, USAID has sought to reform the critical role natural resources play in Indonesia's development. The crux of the program has comprised projects aimed at supporting policy reforms, building stronger institutions, encouraging greater community/stakeholder inclusion, and integrating other social and economic sectors into improved NRM governance across both landscapes and seascapes.

The nearly 30 years of the NRM Program has been a period of great political change in Indonesia. The country has been transformed from a highly centralized, authoritarian state into a largely decentralized, multi-party democracy with a vibrant civil society. Indonesia continues to improve its human resources and the associated institutions needed to support continued economic and social development.

Natural resources—oil and natural gas, minerals, forest products, and marine resources—have played a central role in Indonesia's political economy from independence to the present day. How these resources have been controlled and managed has decisively impacted the evolution of the country's political system from the "Old Order" (1945-1965) to the "New Order" (1966-1998), and through the democratization and decentralization reform period up to today. Indonesia's constitution grants the state control over natural resources and related industries; the clear expectation was that the Indonesian people, particularly the poor, would benefit from that resource exploitation. However, especially in the case of forest resources, there are still challenges to ensuring that ordinary Indonesian citizens benefit from natural forest utilization.

Most Indonesians have now experienced benefits from economic development. Still, the impact of forest management on local economies is questionable, and unsustainable land management contributes to increasing impacts from climate change such as fire, floods, and drought.

USAID pioneered support for sustainable policies and institution-building in Indonesia and led capacity-building efforts for marine conservation and sustainable fisheries at the national and subnational levels. This is a major achievement in a sector that had been previously ignored by donors. Today, USAID's direct support does not have the same impact as was the case 30 years ago. Indonesia has a rapidly growing economy and an increasingly skilled workforce. In this context, USAID is adjusting its strategy to partner with Indonesia in solving its evolving development challenges.

This retrospective study reviews the progress and challenges in USAID/Indonesia-funded terrestrial and marine-based projects in four areas: (i) support for policy and institutional reform; (ii) community-based natural resource management (CBNRM); (iii) integrated landscape and seascape interventions; and (iv) USAID/Indonesia's design and management of the program.

PRINCIPAL FINDINGS OF THE STUDY

1. **Policy and institutional development**. On balance, the NRM Program's policy and institutional development efforts in the coastal and marine sub-sectors proved successful; USAID's projects provided consistent and effective long-term support at the national and subnational levels. In comparison, the program's policy and institutional support to the Ministry of Environment and Forestry's (MOEF) production forestry program was more uneven in terms of achievement, whereas support for nature conservation was somewhat more successful. The program's impact on terrestrial policy and institutional development at the provincial and district levels has been mixed. For example, support for forestry and protected area management was more successful in some provinces than in others, in part because the quality of governance varied in different provinces. In sites where good governance was more common, USAID's capacity-building activities—using local land-use development planning tools or participatory approaches to zoning, protected area management, or climate change mitigation—were important. There are many more well-educated Indonesians now in local governments, communities, and nongovernmental organizations (NGOs) who are able to implement sustainable NRM. Local and regional governments, and NGO partners currently have considerable experience and capacity to support NRM compared with 30 years ago. USAID's support of Indonesia's environmental movement from the 1990s onward, and its post-graduate degree programs for Indonesians in the United States, have made a significant contribution to this changed institutional setting.

2. **Community-based natural resource management**. The NRM Program and its partners learned early on that community-based NRM projects exhibited great potential for biodiversity conservation. The NRM Program learned that local champions, respected in the community, should play leading roles in interventions. This was frequently a representative from an Indonesian NGO, though it could also be members of the community who stood to gain from a more equitable and sustainable management of the resource. The NRM Program and its NGO and local government partners further discerned that a successful CBNRM intervention requires dialogue and persistence to build resilient local institutions to support broad-based resource rights. Unfortunately, the relatively short four or five-year assistance projects frequently make this kind of approach difficult to sustain.

3. **Integrated landscape and seascape interventions.** An integrated, site-based program strategy has facilitated the design of more effective and locally appropriate interventions. However, this strategy can make it challenging to share successful management models, field-based knowledge, and evidence across sites. The ability to inform national policy without a specific knowledge-sharing and learning mechanism for that purpose has also proven to be difficult. In the terrestrial projects, the weakness of the connection to national-level agencies made it difficult for early projects to develop broad policy recommendations based on field experience and achievements. Since 2015, terrestrial projects have demonstrated a much better linkage to national government counterparts. USAID's marine projects have always had closer working relationships with the Ministry of Marine Affairs and Fisheries (MMAF). This has facilitated policy and regulatory support to local and regional governments. This close relationship is attributable to the involvement of USAID in the establishment of the MMAF and its subsequent marine projects.

4. **USAID/Indonesia's design and management of the program.** USAID has adapted the focus of the NRM Program over the period reviewed in this study to be roughly in line with political events and structural shifts in the Government of Indonesia (GOI). The program started

with a project design that roughly balanced support for national policy reforms and institutional development with site-based assistance to local governments and communities. The program now mostly focuses on the provincial and district levels of government, and specifically on integrated landscapes and seascapes. The program's mechanisms have been largely nimble, taking advantage of new opportunities as they emerged during this politically dynamic period. This can be seen in NRMP II experimentation with co-management of protected areas and in the Coastal Resources Management Program's (CRMP) quick shift to support the creation and capacity-building of the new MMAF in 1999.

The U.S. Government, through USAID, has invested considerably in biodiversity conservation by building Indonesia's capacity in the development of NRM institutions, policies, tools and methodologies. While local land-use development planning depends on political will for effective implementation (to control the location, and the scale of investment and development), other tools such as climate vulnerability assessments, multi-stakeholder forums, and public participation mechanisms and field-based training have been generally effective in creating public awareness and greater support for the program's objectives.

WHERE DOES USAID/INDONESIA GO FROM HERE?

The GOI includes sustainable NRM and biodiversity conservation goals in both medium-term and long-term national development plans. Partnering with Indonesia to further strengthen GOI and civil society capacity and commitment to achieve these goals is of utmost importance. A **continued Mission focus on its NRM and climate change portfolio** is entirely appropriate given Indonesia's economic reliance on natural resources, the global importance of its biodiversity, and the country's very large role in land-based greenhouse gas emissions. With USAID support, Indonesia is within reach of implementing its own solutions to conserve biodiversity and sustainably manage natural resources in a transparent and accountable manner.

1. For its integrated landscape and seascape interventions, the Mission could consider:
   a. **Continuing to address the biodiversity, sustainable livelihoods, and climate change adaptation needs** of selected sites;
   b. **Making a much greater effort to communicate how degradation of an ecosystem adversely impacts other sectors** negatively (e.g., food insecurity in agriculture, human health concerns, and climate-related disasters), **and how diverse and intact ecosystems provide goods and services to those sectors**; and
   c. **Continuing to support more activities in the buffer zones of protected areas and high conservation value forests.** This is critical to building a long-term constituency for conservation and more sustainable management in communities across those landscapes, as well as possibly reducing some of the illegal logging in forests that are already damaged.

2. The Mission might also be encouraged to:
   a. **Continue its coastal and integrated seascape interventions**, including reducing Illegal Unreported and Unregulated Fishing (IUUF) activities, supporting marine products certification, improving the fisheries value chain, and supporting participatory management of marine protected areas—given that these have already proven to be successful;
   b. **Continue its terrestrial activities that**:
      i. **emphasize climate change adaptation and mitigation** (as much as possible) and **high-value and fragile terrestrial habitats** (e.g., peatland swamp), and

ii. **promote and support traditional forest community land rights, official recognition of customary rights, and the award of deeds to communities** (since communities are often constituents for sustainable forest management); and

c. **Leveraging private sources to purchase forest concession licenses** (i.e., to convert to wildlife habitat conservation refuges).

3. USAID/Indonesia should consider to continue working with its national government partners to develop innovative ways to **collaborate in support of Indonesian NGOs, universities, and research entities working on NRM, climate change, and sustainable livelihoods**. This would broaden the range of project implementation partners and provide investment in organizations that will be active in Indonesia over the long term.

4. Finally, the Mission should consider developing **a learning-centered mechanism** or utilize an existing mechanism to extract evidence and lessons from the NRM and climate change-related interventions in Indonesia, including those supported by other development actors. Systematic collection of evidence and lessons would assist with policy and institutional development proposals.

1. INTRODUCTION

I. ABOUT THIS STUDY

This study is a high-level synthesis of USAID/Indonesia's long-term investments in sustainable natural resource management (NRM) in Indonesia. It documents achievements and lessons learned from the NRM Program over a roughly 30-year period and provides inputs for the development of future USAID/Indonesia Country Development Cooperation Strategies (CDCSs) and Tropical Forests and Biodiversity Analyses. (See the detailed Statement of Work in Annex II for more information on the context of the study.)

The NRM Program encompassed a broad array of initiatives and instruments. These included: (i) completed contracts and task orders; (ii) cooperative agreements with international non-governmental organizations (NGOs) and their Indonesian affiliates; (iii) inter-agency agreements with other U.S. Government agencies; (iv) USAID/Indonesia Mission buy-ins to global and regional USAID programs; and (v) numerous grants. Annex III lists 24 of the larger initiatives over the life of the program, though many of the large contracts and task orders had small grants under contract components and the Indonesia Mission provided "annual program statement" grants in Indonesia's natural resource sectors. Altogether, USAID/Indonesia funded dozens of large and small NRM activities across many geographical and ecological landscapes. This study examines how the scale of this effort affected the results achieved in building improved sustainability of natural resource governance in Indonesia.

II. METHODOLOGY

This retrospective study is mainly a desk study. The study team reviewed: (i) technical reports, annual and end-of-project reports, and evaluations of NRM Program contractors and cooperators; (ii) third-party reports and studies; and (iii) selected datasets. The team then developed an analytical and historical narrative of the evolution of the NRM Program and the policy themes characterizing the program. Key informant interviews, which provided information on the policy and institutional context, and on implementation experience, were used to supplement the narrative.

This methodology had some limitations:

1. Given the nearly 30 years of program experience, the number of potentially relevant interviewees easily ran into the hundreds, if not more. However, it was difficult to track down key informants. Not all key informants currently live in Indonesia and attempts to obtain their comments remotely were not always successful.

2. The study team tried to strike a balance between interviewing Government of Indonesia (GOI) representatives, implementing partners, and USAID staff. The timeframe and level of effort for this study did not permit extensive interviews with beneficiaries. However, interviews with implementing partners, and the project reports the study team reviewed, always included information about how beneficiaries reacted to the interventions. The study team emphasized results from the interviews with representatives of the GOI and implementing partners to assess the dynamics of relevant project and activity implementation in Indonesia's rapidly evolving context during this period.

III. ORGANIZATION OF THE STUDY

The study is organized around three themes that emerged from the readings and interviews. These themes have characterized the NRM Program since its inception:

1. A focus on national and subnational policies and institutional structures that support sustainable NRM.

2. Explicitly incorporating community-based NRM (CBNRM), and the associated rights and responsibilities to build and strengthen constituencies for biodiversity conservation and environmentally sound development.

3. An integrated, site-based (landscape or seascape) strategy for program interventions.

These substantive themes reflect: (i) the essential roles and flows of ecosystem goods and services across sites; and (ii) the interdependency of development activities and their impacts on the sustainability of Indonesia's natural resource base.

While this study is organized around the three programming "paths" of the NRM Program, it is also divided into two distinct periods, namely 1990 to 2005, and 2005 to 2020 (up to and including current implementation activity). Each period spans roughly 15 years. Projects from the first 15-year period encompassed activities undertaken mostly at the national level. The relatively few activities implemented at the subnational level were primarily demonstrations of policy reforms and best practice aimed at influencing change at the national level. In the second 15-year period, the dominant thrust has been subnational-level activities, with considerably less focus on national-level policies and institutions. Marine programming was a partial exception to this shift.

The study also assesses USAID/Indonesia program design and management as the program has evolved, helping to explain the rationale behind some of the funding and project design choices made during the life of the program.

The report concludes with recommendations for future NRM programming. Annex I presents six case studies and selected datasets to illustrate the NRM Program's site-based activities, institution building efforts, and technical support. The cases provide additional details on implementation activities and accomplishments.

2. HISTORICAL CONTEXT, RATIONALE, STRATEGIES, AND APPROACHES

This section provides the historical context of how and why natural resources have been critical to the evolution of Indonesia as a nation. It presents an overview of the major political and economic drivers of Indonesia's exploitation and governance of its natural resources in the pre- and post-independence periods, including the critical political influences from 1965 to the present. This section also summarizes the key USAID/Indonesia NRM Program strategies and approaches that support the findings described in Section 3.

I. POLITICAL AND ECONOMIC DRIVERS OF NATURAL RESOURCE EXPLOITATION AND GOVERNANCE

Indonesia has long been of strategic interest to the United States. The United States was one of the first countries to establish diplomatic relations with Indonesia in 1949 and helped to compel the Dutch to end colonial rule. The United States and Indonesia share many commonalities with respect to resource endowments, but diversity—of marine and terrestrial geography and ecosystems, populations, and cultures—is perhaps the most important similarity. Even their national mottos, *e pluribus unum* (out of many, one) and *Bhinneka Tunggal Ika* (unity in diversity), are similar. However, their different modern histories have affected their political and economic development. The historical context of Indonesia's natural resource-based development is key to understanding its current national trends. This same development history explains how the NRM Program evolved over time in response to larger political events in Indonesia and the United States.

Post-Colonial Determinants of the Political Economy of Indonesia: Pre-1945

When Indonesia declared independence in 1945, the new nation had relatively few formally educated people, little industry, and limited modern infrastructure outside of a few cities. The small, modern economic sector was based mainly on resource extraction, while most of the population lived in rural villages and practiced subsistence agriculture. In 1949, when the Netherlands finally acceded to Indonesian independence, the Round Table Conference at The Hague imposed an onerous financial and economic agreement on Indonesia. Under the agreement, all modern industries, inter-island shipping, plantations, and financial institutions remained under the effective control of the Dutch. This left the native Indonesian population with an economy based on subsistence agriculture and handicrafts. Indonesian sovereignty was further undermined by the requirement that all foreign trade, foreign exchange rates, and other international economic and financial policy decisions be made in consultation with the Dutch Government. Finally, all the Netherlands' debts in Indonesia were imposed on an already desperately poor nation.[1] This agreement established a pattern of foreign political and economic policy interventions, which was a notable characteristic of Indonesia's development for a considerable time.

The Old Order Era: 1945-1965

Not surprisingly, the early post-independence period saw sluggish economic growth, as most of the benefits went to the Netherlands and other foreign investors. Few Indonesians were brought into the management of modern businesses, and most did not have ownership stakes—except the tiny, wealthy Indonesian Chinese population. This neo-colonial burden proved very frustrating to most Indonesians. In 1957, President Sukarno nationalized the majority of industries, banks, and natural resource extraction enterprises. This caused major economic dislocation as shipping, industrial, and financial firms were suddenly turned into state enterprises without the required domestic management capacity. The economy floundered, famine occurred, and corruption flourished. The decade of the 1960s saw barely any economic growth. Meanwhile, President Sukarno's increasing support from the Indonesian Communist Party (PKI) angered sections of the Indonesian military and Western governments. At the time of Sukarno's downfall, the economy was in chaos. Export revenues had shrunk, infrastructure had crumbled, factories were operating at minimal capacity, investment was negligible, and inflation topped

[1] See Nicholas J. White, "The Settlement of Decolonization and Post-Colonial Economic Development Indonesia, Malaysia, and Singapore Compared," *Bijdragen tot de Taal-, Land- en Volkenkunde* 173 (2017): 208-241.

700 percent in 1966. The abortive coup of September 1965 led to the emergence of President Suharto and his military-backed, technocratic New Order government.

The New Order Era: 1966-1998

Introduction of Economic Liberalization and Technocratic Planning. With support from Western governments, a new liberal foreign investment law was passed in 1967 that gradually reversed many of Sukarno's nationalizations. In the same year, the new Basic Forestry Law (No. 5/1967) declared all national "forest estates" to be state-owned land, instantly depriving peoples living on those lands (mainly in the Outer Islands, that is, all islands except Java, Bali, and Madura) of their traditional land rights. The law further provided the legal basis for the national government to award timber concessions and forestland conversions without any prior consultation with local governments or forest dwellers. These two laws and others led to a major increase in foreign investment, especially in the natural resource sectors. The overarching philosophy of the New Order economy was to intensively exploit natural resources to accumulate the capital needed to invest in modern industry and infrastructure in order to reach economic "take off" (*lepas landas*).[2] In exchange for this abrupt political economic "turn of face," major foreign donors organized a large foreign assistance program guided by a donor-GOI formal consultation known as the Inter-Governmental Group on Indonesia (IGGI).

Though a cadre of technocrats guided economic development policy, mainly from the new National Development Planning Agency (Bappenas) and the Ministry of Finance, Indonesia was fundamentally still a dual economy in the 1970s and early 1980s. Foreign companies with politically connected Indonesian civilian and military partners dominated the resource extraction sector (oil and gas, mining, plantation crops and, increasingly, timber), though new investment had to be undertaken through joint ventures with Indonesian partners. However, the great majority of the population continued to live on subsistence agriculture. The economy began diversifying in the late 1980s and early 1990s with light industry, tourism, and construction taking off, and stable economic and financial policy provided a better basis for development.

The interweaving of resource exploitation and political/economic development is reflected in the major political events of the past 30 years and even earlier. As the timeline in Table 1 indicates, natural resource exploitation has had, and continues to have, a profound influence on Indonesia's political and economic development.

[2] Indonesian economic technocrats were heavily influenced by the theories of the American economist Walter Rostow. His "stages of growth" theory of economic development was very influential in the 1960s in much of the developing world. The five stages are: (i) traditional society; (ii) transitional society; (iii) take-off; (iv) drive to technological maturity; and (v) high mass consumption.

TABLE 1. IMPORTANT AND RELEVANT POLITICAL EVENTS IN INDONESIA THAT HAVE IMPACTED NATURAL RESOURCE MANAGEMENT

Year	Political Events
1978	Coordinating Ministry for Development Supervision and the Environment created.
1982	Department of Forestry (previously a Directorate General within the Department of Agriculture) created.
1993	Suharto appointed to fifth term as President.
1995	USAID/Indonesia and the GOI develop an Environmental Assessment and Strategic Action Plan with wide participation from businesses, NGOs, universities, and other donors.
1996	USAID/Indonesia and the GOI develop a Strategic Objective Program Agreement to support the environmental objectives under Indonesia's Sixth Five Year Development Plan, as well as the Biodiversity Action Plan.
1997	• Asian financial crisis engulfs Indonesia and El Niño-induced drought and forest fires cause major damage to the forest estate. • Parliament passes Law No. 23/1997 on Environmental Management.
1998	• International Monetary Fund imposes major restructuring reforms on banking and industry. Some of these reforms affect forestry and plantations as a condition for a Structural Adjustment Loan. • Suharto appointed to sixth term as President in March but forced to resign in May.
1999	• Abdurrahman Wahid becomes the first president appointed in the post-Suharto "*Reformasi*" period. • Ministry of Marine Affairs and Fisheries created. • Law No. 41/1999 on Forestry is passed, superseding the 1967 Basic Forestry Law.
2004	• Parliament passes Law No. 32/2004 on Regional Government decentralizing many authorities to the district level. • Susilo Bambang Yudhoyono becomes the first directly-elected president in Indonesia's history.
2009	Parliament passes Law No. 32/2009 on Environmental Management and Protection. This is a major advance over the 1982 Environmental Law.
2010	The Department of Forestry becomes the Ministry of Forestry.
2013	The GOI signs a Voluntary Partnership Agreement with the European Union detailing points on forest law enforcement, governance and trade in timber products into the European Union.
2014	• Law No. 23/2014 on Regional Government returns several governance authorities to the provincial level of government, especially authorities relating to NRM. • Joko Widodo elected President. His main policy priorities relating to NRM are: (i) re-establishing Indonesian marine sovereignty and protection of fisheries and; (ii) agrarian reform, with social forestry as a major component. • President Widodo decides to merge the Ministry of Forestry and Ministry of Environment.
2015	The Ministry of the Environment and the Ministry of Forestry merge to become the Ministry of Environment and Forestry (MOEF). The intention is to bring a more explicit sustainability approach to forest management. Climate change activities are also moved to MOEF.

Policy and Governance Issues in the Forestry Sector. During the New Order era, nearly all resource extraction industries operated with little effective regulatory oversight or respect for local communities. However, the production forestry sector was perhaps the most dramatic example of the political economy of unsustainable resource exploitation during this period. Production forestry (encompassing natural forest timber harvesting and fast-growing tree plantations used for pulp) was transformed from a small and largely artisanal industry in the 1970s into an industrial behemoth dominated by foreign investors and wealthy Indonesian conglomerates in the 1980s.

The Department of Forestry oversaw the vast forest estate and was supposed to regulate the production forestry sector. However, due to the highly centralized nature of the national government, provincial and district governments had little effective control over forest governance. Moreover, during the New Order period, the production forestry sector largely operated outside of an accountable and transparent management system; it was responsible only to the President and a small, wealthy business elite. The highly centralized "command and control" philosophy of the New Order

also meant that the regulation of the forestry industry was not based on clear performance standards related to long-term resource sustainability, or the characteristics of individual forest ecosystems. Rather, the Department of Forestry imposed a complex, standardized regulatory system over the vast forest estate, enforcement of which was not possible by the relatively few government bureaucrats in the department. Instead, oversight and management of concessions were explicitly delegated to state forestry enterprises and private concessionaires.

As a result, effective government oversight of production forests was largely lacking. The Department of Forestry's Selective Cutting and Replanting System (TPTI) was poorly implemented, with the result that production forests were overharvested and rarely replanted. The introduction of industrial forestry practices, mechanization, and overbuilding of plywood and other wood-processing facilities for export, greatly exacerbated this situation (see Case Study A in Annex 1). Industry concessions were also subject to follow-on illegal logging by non-concessionaires, while weakened forest ecosystems were subject to forest fires and illegal land conversion to timber plantations or oil palm estates.

Although private sector interests owned most of the timber concessions, by 1998 about 34 percent of timber concessions had become state-owned enterprises. These were collectively known as PT Inhutani. They were often indirectly controlled by the military or the Suharto family, and officially were meant to supplement the nation's military budget (and sometimes informally the Department of Forestry's budget).[3] Aggressive "mining" of production forests seriously undermined the resource such that, by 1998, the number of production forestry concessions peaked, falling off precipitously after that.[4]

The policy architecture of the New Order administration prevented the adoption of sustainable forest management policies. These included: (i) underpricing the replacement value of timber; (ii) the total non-accounting for non-timber ecosystem products and services; (iii) overbuilding of the plywood industry (including significant indebtedness and subsequent low export prices in order to dominate the export market); and (iv) diverting funds intended for enrichment plantings in concessions to non-forestry uses.[5]

A final problem with forest management in the New Order era relates to the broader issue of land management. Land classified as conversion forest (i.e., land under concessions designated for oil palm, or pulp and paper plantations) was frequently not developed because deforesting the concession simply to obtain the valuable timber was far more profitable.[6] Sometimes the land was simply abandoned. Some concessionaires exploited forests at an unsustainable rate, managed their sites poorly, and had no view of long-term, forestry concession investment. With few exceptions, this is

[3] Matthews, ed. State of the Forest: Indonesia, 2002.
[4] See Forest Rehabilitation in Indonesia: Where to After More Than Three Decades? ed. Ani Adiwinata Nawir *et al.* (Bogor: CIFOR, 2007), 18. In June 1998, there were 652 HPH companies with concessions totaling 69.4 million hectares, whereas by 2001 there were only 361 active HPH companies with a total operating area of 36.42 million hectares.
[5] See C. Barr, A. Dermawan, H. Purnomo, and H. Komarudin, Financial governance and Indonesia's Reforestation Fund during the Soeharto and post-Soeharto periods, 1989–2009: A political economic analysis of lessons for REDD+ CIFOR 52 (2010). Also, Madhur Gautam et al., Indonesia, The Challenges of World Bank Involvement in Forests (2000).
[6] Christopher Barr, "Timber Concession Reform: Questioning the 'Sustainable Logging' Paradigm," In Carol J. Pierce Colfer, *Which Way Forward: People, Forests, and Policymaking in Indonesia* (Routledge, 2002).

still the case today.[7] Government decisionmakers viewed Indonesian forests as a valuable but expendable resource, mainly for generating foreign exchange.

Economic Crisis and the Fall of the New Order. In mid-1997, the Asian financial crisis reached Indonesia and the Indonesian rupiah's value collapsed. Many small, over-leveraged banks went bankrupt, and businesses confronted a rapidly destabilizing economic and financial environment. In addition to the economic crisis (called "*krismon*"), the worst El Niño drought to hit Indonesia in many years caused massive forest fires in Indonesian Borneo and Sumatra; these fires have plagued the country ever since. Exacerbated by legal and illegal logging, and forestland conversion, the fires extended into 1998 and added to the growing political crisis facing the New Order. Many newly working-class Indonesians who had migrated from rural villages to work in new industries and construction had to return to their villages and exploit their surrounding natural resources as their only social safety net.

The deepening economic crisis forced Indonesia to request a structural adjustment loan from the International Monetary Fund (IMF). The signed letters of intent in 1997 and 1998 entailed serious policy reform conditionalities. Reforms focused mainly on restructuring banks, and fiscal and monetary policies, but some also included the natural resource sectors. The latter sought to dismantle the timber cartel and oil palm policies where crony capitalism, inefficiency, and corruption were rife and governmental oversight weak. Meanwhile, the economic crisis caused growing and widespread rioting, together with internal divisions within the armed forces. These mounting pressures finally led to Suharto's resignation as President in May 1998, thereby ending his rule of more than 30 years.

The Reformasi Era and Changing Patterns of Resource Governance: Post-1998

Bold decentralization, beginning in 1999, shifted authority over, and management of, forest resources and plantation crops to district governments. The national government, large corporations, and the military continued to determine large-scale land use and resource extraction policies, but now district governments were more involved for the first time. This sometimes led to conflicts between national and local governments, especially in Papua and West Papua (together formerly called Irian Jaya). In these provinces (the last to be incorporated into Indonesia), non-Papuan entities undertook widespread natural resource exploitation and development of plantations. This exploitation, combined with large-scale transmigration of populations from Java, had long been a source of low-level conflicts during the New Order era. These conflicts continued into the *Reformasi* era, albeit to a lesser extent, perhaps because of "special autonomy."

In other resource-rich provinces, the transfer of authorities over natural resources directly to district governments led to a dramatic increase in illegal logging and other unsustainable resource management practices. Moreover, forest land conversion for oil palm plantations began to dominate land use policy on the Outer Islands,[8] usually at the expense of intact rainforests.

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[7] Sinan A. Abood, Janice Ser Huay Lee, Zuzana Burivalova, John Garcia-Ulloa, and Lian Pin Koh, "Relative Contributions of the Logging, Fiber, Oil Palm, and Mining Industries to Forest Loss in Indonesia." *Conservation Letters* 8, 1 (April 2014).

[8] Longstanding historical and anthropological research has divided Indonesia into the "Inner" and "Outer" islands. The Inner Islands are Java, Bali, and Madura. The Outer Islands are all other Indonesian islands. Historically, the Inner Islands have comprised most of the population and the center of economic development, whereas the Outer Islands were sometimes perceived as the source of raw materials, energy, and other resources for the Inner Islands.

The impacts of this massive forest land conversion are discussed later in this study. In brief, they included severe and forced displacement of communities, and conflicts between forest communities and corporate entities, primarily oil palm plantation owners and operators. Police and security forces often assisted plantation owners, with the resulting marginalization of indigenous populations.[9]

Foreign investors or powerful Indonesian interests dominating natural resource exploitation policies, often at the expense of the rural poor, is a pattern repeated in Indonesian history from the colonial era through to the present. While most Indonesians have now experienced some benefits of economic development, the tremendous imbalance in power and wealth resulting from the exploitation of natural resources is not sustainable as the quality and quantity of the resource base is gradually eroded.

II. KEY STRATEGIES AND APPROACHES OF USAID/INDONESIA'S NRM PROGRAM

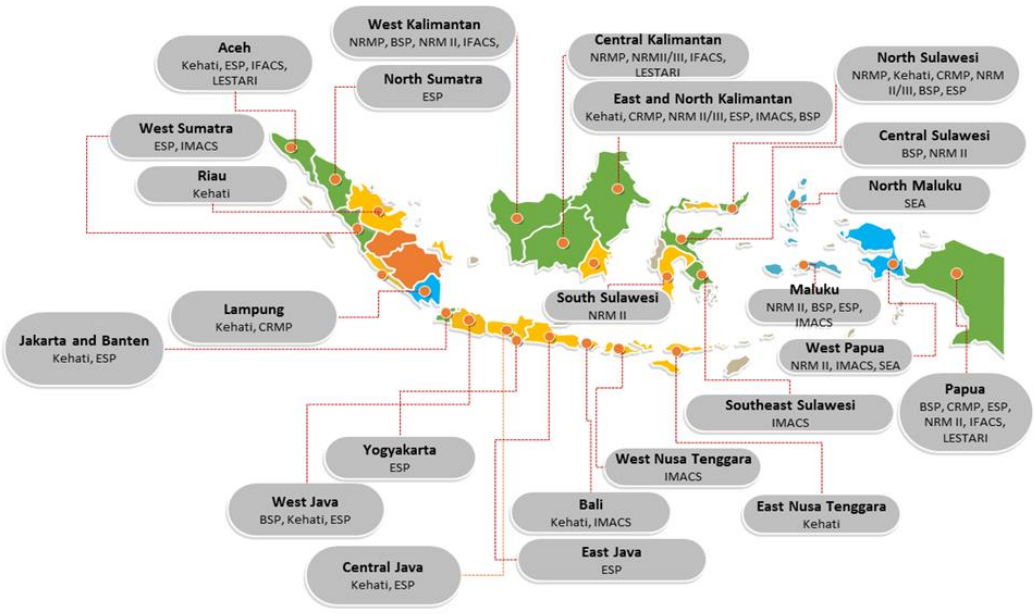
USAID has long recognized the role of natural resource exploitation in the political economy of the country (as described above). In the 1970s, the donor community, including USAID and elements of the GOI, saw that the country lacked the human capacity and legal framework to sustainably manage its resource endowment for sustained economic growth. In response, donors invested in sound environmental protection policies, institutions, and infrastructure. In the 1970s and 1980s, USAID's overall assistance supported reforestation and river basin management activities (especially in Java), capacity-building for environmental management in government and universities (including overseas postgraduate training), and the strengthening of Indonesia's robust non-governmental environmental organizations.

The Emergence of USAID/Indonesia's NRM Program

The Mission articulated its first comprehensive environmental strategy (the proposed Natural Resource Management Project [NRMP I, 1990-1997]) in its Country Development Strategy Statement (CDSS) of 1988. This was the first significant USAID/Indonesia project that included terrestrial and coastal/marine interventions, support for policy reforms, and measures to strengthen institutions. The program set the foundation for future USAID/Indonesia NRM interventions and was implemented in most Indonesian provinces. The map below presents the location of USAID/Indonesia's NRM activities over the past nearly 30 years.[10]

[9] John Vidal, '*Indonesia is Seeing a New Corporate Colonialism*,' Global Development (2013).
[10] See Annex III. Relevant USAID/Indonesia Natural Resource Management Projects: 1990-Present.

FIGURE 1. LOCATIONS OF NRM PROGRAM ACTIVITIES IN INDONESIA, 1990-PRESENT



Note: The nationwide BIJAK and PRESTASI projects are omitted from this map. The Biodiversity Support Program (BSP) was a USAID/Washington activity in which USAID/Indonesia made specific funding contributions for the Biodiversity Conservation Network (BCN) and Kemala. The Tropical Forest Conservation Act (TFCA) activities in Indonesia were administered by KEHATI.

Source: USAID-funded Indonesia Monitoring and Evaluation Support Project (MESP), based on analysis of NRM Program documentation.

USAID/Indonesia's vision for the NRM Program was to support stable and sustainable economic and social development through sound management of the country's natural resource endowment and the building of its human capital base. This core vision and design has been mostly stable for over a quarter of a century. The program's design reflected three interdependent elements: (i) policy reforms and institutional arrangements based on evidence and science and grounded on site-based experience; (ii) promotion of transparent and accountable NRM norms through greater inclusion of communities and other stakeholders in NRM decision-making and in the receipt of benefits; and (iii) integration of other social and economic sectors into improved NRM governance across landscapes and seascapes.

In1986, the U.S. Congress amended the Foreign Assistance Act to require development assistance funds to place greater emphasis on the conservation of tropical forests and biodiversity. In 1987, Congress established a directive to use a portion of these funds for biodiversity conservation. USAID/Indonesia first included biodiversity conservation and NRM goals in its 1988 CDSS, establishing what came to be known as the "NRM Program". The 1990 Project Paper[11] describing the objectives and overall design of the NRM Program set out several key directions and approaches that mostly remain today. In the first activity, USAID and the initial NRMP team worked with principal government partners (the National Development Planning Agency [Bappenas], the Department of Forestry, the Ministry of the Environment, and the Ministry of Finance) to build their capacity for policy formulation and implementation of best practices on various natural resource issues. While the Ministry of Finance was dropped as a partner in subsequent projects and the Ministry of Marine

[11] USAID. "Natural Resources Management Project (497-0362)." Project paper and selected annexes. 1990.

Affairs and Fisheries (MMAF) was added (it did not exist until 1999), the set of partners has remained mostly the same since the program's creation.

After the end of the New Order administration, USAID/Indonesia built a communications and media outreach component into most of its subsequent NRM projects. The purpose was to leverage the impact of project activities to influence a broader target audience, including the general public, to build a constituency for environmental stewardship.

Later in the NRM Program's history, recognition of the additional stresses that climate change imposes on the sustainability of ecosystem goods and services provision became an additional element of NRM Program interventions, leading to funding for climate change mitigation activities.

Throughout the NRM Program's history of interventions these three themes have been structured to be mutually supporting, though some of the smaller cooperative agreements and grants emphasized one theme over the others. This study considers the impact and overall value of NRM Program activities around each of these themes, as well as lessons learned from those activities.

3. THE FIRST 15 YEARS: AUTHORITARIAN RULE AND THE DEMOCRATIC TRANSITION, 1990-2005

I. NATURAL RESOURCE MANAGEMENT PROJECT I (NRMP I) (1990-1997)

Policy Reform and Institutional Development

The extent to which a nation's natural resources are exploited, how this exploitation is managed, and how the revenues are used is inherently a matter of public policy. Similarly, the institutions for governing and regulating NRM, from communities to the national government, determine the sustainability of NRM.

From the start of the NRM Program, USAID/Indonesia envisioned policy reform and institutional development as key components of assistance programs. This was because of the highly centralized and non-transparent nature of policy-making and governance under the New Order administration. It was also due to Indonesia's size and economic dependence on the exploitation of natural resources. To USAID/Indonesia, assistance in these two areas was both practical and a critical prerequisite to more sustainable NRM.

Objective and Challenges. The first Natural Resource Management Project (NRMP I) supported the GOI's efforts to improve policy-making capacity to manage natural resources. The project supported one of the Mission's strategic objectives: the "adoption of improved policies [and practices] in natural resources and urban/industrial environmental management."[12]

The single focus on policy reform generated many (79) policy studies over the seven years of NRMP I. Of these, half addressed policy issues related to the economic valuation of specific natural resource

[12] Drawn from Winrock International's Midterm Evaluation of USAID/Indonesia's NRMP 2005, vii.

systems. The failure to fully and accurately value Indonesia's natural resources was, and in many respects still is, a fundamental problem with Indonesian NRM policy.

The NRMP I team generally found it challenging to engage government stakeholders. The team failed to convince staff at the Department of Forestry to incorporate the project's policy proposals into production forestry or protected areas management policies and regulations. Instead, it was found to be easier to engage Bappenas in policy dialogues, since natural resource policy and development planning management is core to that agency's mission. Indeed, the fact that the formal government sponsor of NRMP I was Bappenas may have made it difficult to engage in policy discussions with the Department of Forestry. However, the jurisdictional independence of NRMP I was important. Otherwise, the project could have been more beholden to the Department of Forestry and less able to address other sectors or work as flexibly with NGOs as it did under Bappenas' sponsorship.

Key Successes of NRMP I

Despite the difficulty of engaging with the Department of Forestry in significant production forestry reforms, NRMP I had several achievements:

1. NRMP I **developed several methodologies for monitoring forestry activities and specific policy and economic recommendations** to government partners, and **conducted extensive mentoring and workshop training**, especially with the Department of Forestry. These concrete results covered protected areas (mainly terrestrial), production forests, and NRM more broadly.

2. The project **pioneered the use of informal training mechanisms**—workshops, study tours, and short courses in the Indonesian language—to help build the capacity of a growing cohort of NRM policy and institutional analysts and technical specialists. This cohort (which now includes both district and provincial government staff) expanded considerably in 1999 when Indonesia moved aggressively to decentralize authority.

3. NRMP I was **USAID's first attempt to understand and assess indigenous forest people's perceptions of their customary law (*adat*) resource use rights and conflicts with production forest concessionaires**. Both were important for future policy and legal proposals on this subject, as taken up by the subsequent NRMP II, NRMP III and other projects.

4. The project made **methodological and documentary contributions** to the subject of improved economic valuation of Indonesia's resources, especially its forest resources. Its analyses of the lack of economic sustainability of the Selective Cutting and Replanting System (TPTI) for forests as practiced contributed indirectly to attempts at forestry reform following the end of the New Order.[13] For example, its recommendations on improving the TPTI system for production forest management (included in the NRMP I reports listed in the footnote below) were later incorporated into MOEF's technical guidance and field training on forest concessions to reduce ecosystem damage and improve productivity. Despite these successes, however, continuing poor forestry practices on the ground have tended to persist in reality.

[13] See, for example, Curran (1992) and NRMP Report Nos. 4 and 10 (1992), Nos. 28 and 29 (1993), and No. 42 (2004).

5. Though not part of NRMP I, USAID/Indonesia supported the establishment of **the Indonesian Biodiversity Foundation (KEHATI)** in 1994. Financed through an innovative mechanism consisting of an endowment of $16.2 million, the foundation was legally established in January 1994 through a USAID/Indonesia investment in a U.S. stock market fund. KEHATI used the interest dividends on these funds for grant-making in support of biodiversity conservation in Indonesia. USAID's cooperative agreement with KEHATI ended in 2005. However, the foundation still follows the same model today as an active biodiversity conservation and sustainable development grant-making body. It collaborates with NGOs, universities, and communities, but continues to be closely associated with USAID/Indonesia through debt-for-nature swap programs between the GOI and the U.S. Government under the Tropical Forest Conservation Act, and separately the Blue Abadi Fund.

Lessons Learned

1. **It is critical to involve multiple key stakeholders at both the local and national levels (not just the national government) in policy dialogue.**

   <u>Recommendation</u>: Develop policy proposals and supporting analyses based on an assessment of stakeholder interests and their willingness to participate in policy reforms.

2. **It is critical to work at the local level to develop real, participatory, multi-stakeholder, and decentralized policy and management processes. The approach of NRMP I of primarily gathering information about the interactions of local populations with protected areas did not work well. Nevertheless, the project had very little political space to engage in participatory approaches used in subsequent NRM projects, given that the New Order administration did not support these types of approaches.**

Community-Based Natural Resource Management and Biodiversity Conservation

A common theme in terrestrial and coastal/marine NRM during the New Order era was the absence of formal recognition of the rights and values of an integrated, community-based approach to the management of natural resources (CBNRM for short). While there were a few limited exceptions (e.g., the traditional water users' associations for village irrigation management, especially in Bali and Java), community resource management was subject to close, top-down government controls and large-scale, private sector exploitation, as well as suppression of traditional resource rights, especially in the Outer Islands.

In the 1980s, USAID/Indonesia explored pilot CBNRM activities in some of its river basin management projects (e.g., the Citanduy River Basin Management Project and the Uplands Agriculture and Conservation Project, both on Java). However, USAID, similar to other donors, could only address CBNRM indirectly, for example, by improving irrigation systems or cropping systems. These initiatives did not address resource rights and community-based governance. The CBNRM-like activities undertaken were mostly in communities using customary practices and rights (*adat*).

From the beginning, the NRM Program used a variety of means—small grants, field site pilot activities, and cooperative agreements and subcontracts with NGOs—to explore the potential for empowering communities in NRM and to build dialogues with local and provincial governments.

Challenges. One of the challenges facing NRMP I from the start was defining the "community" on which to base a sustainable NRM approach. Communities in Indonesia are socially heterogeneous in structure and interests, which makes sustaining outside interventions difficult (see Case Study B in Annex 1). The communities that participated in the NRM interventions were very diverse in social and ethnic structure and had conflicting internal interests. Some "communities" were groups of collaborating stakeholders, such as a research community working at a site. Hence, it was challenging to determine a strategy for the intervention and an appropriate entry point activity.

Key Successes of CBNRM

In 1998, the New Order government formally recognized the indigenous community-based management of the Damar agroforests in Krui District, Lampung Province, Sumatra. This forestry governance achievement, which took place in the last months of the New Order administration, was largely the work of the International Center for Research on Agroforestry (ICRAF) and Indonesian NGOs such as LATIN (Indonesia Tropical Forest Institute). The Center for International Forestry Research (CIFOR) also provided important research related to this and similar forest governance systems.[14] All three entities involved—ICRAF, CIFOR, and LATIN—received direct and indirect USAID funding for their research.

Lessons Learned

The need to engage communities—especially indigenous forest communities—had been recognized in NRMP I as an early recommended CBNRM implementation action. The lessons related to CBNRM in NRMP I were:

1. **In successful situations, interventions sought to unearth community dynamics, needs, and constraints to cooperation, rather than begin with a predetermined intervention model.**
2. **A second step was to identify a material or social incentive for continued cooperative management of the natural resources and associated ecosystems targeted.**
3. **Finally, building locally appropriate, transparent, and accountable planning, decision-making, and implementation structures was critical to sustainability.**

II. NATURAL RESOURCE MANAGEMENT PROJECTS II AND III (NRMP II AND III) (1997-2004)

The Natural Resource Management Projects II and III (NRMPs II and III), as the successors to NRMP I, were implemented over a seven-year period. NRMPs II and III comprised nine partners, including a lead contractor, several cooperative agreements with other organizations, and an inter-agency agreement (IAA) with the U.S. Department of the Interior (USDOI). The contractor component began in August 1997 in a very inauspicious political/economic environment, as noted in Section 1. The cooperative agreements had begun a year earlier.

[14] Chun T. Lai et al., *Decentralizing Natural Resources Management: Emerging Lessons from ICRAF Collaboration in Southeast Asia*, 13-15.

Terrestrial Sector Activities

Following President Suharto's resignation, Indonesia faced challenges in its approach to decentralized sustainable forest management, which the project addressed by increasing local government staff capacity and facilitating the enhancement of local legislative capacity. To effectively address these issues, NRMP II and its partners (e.g., the World Wildlife Fund) collaborated with other U.S. Government agencies and donors. The response to the 1997/98 El Niño forest fires was an example of this collaboration (see Box 1). In addition, in concert with the World Bank and other donors, the NRMP II team played a major role in the Donor Forum on Forestry, which assisted the Department of Forestry, Bappenas, and others in implementing the IMF/World Bank reform program.

BOX 1: Addressing the Great Forest Fires of 1997/98: An Example of NRMP II Partner Cooperation on Urgent Issues

USAID has periodically played an important convening function, especially in addressing urgent, high-level NRM issues. This is most notable in the forestry sector.

In 1997/98, catastrophic forest fires driven by a very strong El Niño drought devastated parts of Kalimantan and Sumatra. USAID and the U.S. Embassy in Jakarta provided smoke-penetrating "hot spot" satellite imagery from the National Oceanographic and Atmospheric Administration (NOAA) and interpretation of the imagery by the U.S. Forest Service in order to define specific fire locations and directions. In addition, World Wildlife Fund (WWF) Indonesia provided deeper analyses of the land use types involved and NRMP II helped provide the images and interpretation to the Department of Forestry (working with the German Government and other European Union partners).

These reforms included a gradual restructuring of the production forestry and plantation sub-sectors and the role of the Department of Forestry in these reforms, as well as much larger economic reforms and financial restructuring outside the scope of NRMP II. Soon after, to ensure that resource-rich provinces would not break away from Indonesia and declare independence, the GOI decentralized authorities to the district level in most sectors. That also included "special autonomy" constitutional status for the provinces of Aceh and Papua. Since NRMP II was already working under a strategic objective of decentralized and strengthened NRM, the project team did not need to adjust much of its work plan.

Challenges

1. **Policy and institutional**: The challenges in this area involved helping to reform the Department of Forestry, especially forestry policies, and change the way the department managed protected areas. The aim was to build real local participation into planning, decision-making, and management processes rather than rely on the prevailing standardized, command-and-control approach. Achieving these reforms, however, required significant institutional and individual behavior change, and policies that conferred rights on local populations to co-manage local resources and related ecosystems for sustainability and tangible benefits. Achieving such reforms proved difficult.

2. **IMF/World Bank forest policy and institutional reforms**: Over the course of both projects, the NRM Program (and other donor programs) struggled to make progress in support of the forest reforms mandated in the IMF/World Bank reform program. This was especially

true for reforms affecting the sustainable management of the natural forest timber production and pulp plantation forestry sub-sectors. Even after the end of New Order interference in the sector, the Department of Forestry remained severely constrained by the lack of technical capacity—particularly forest economics expertise—to manage the large and ecologically complex forest estate. The department was also hindered by excessive centralization of decision-making. NRMPs II and III faced similar problems to NRMP I. In particular, USAID and other donors had to deal with district governments that had even less forestry management expertise.

3. **Management amid decentralization**: Previously, Jakarta controlled the concession system with little or no consultation with provincial or district governments. Decentralization thus created a management vacuum. Even after the 1999 Forestry Law was passed, concessions continued to be awarded in a non-transparent fashion, this time by district governments, with little accountability for the management of the concessions.

4. **Rapid decentralization**: After 1999, rapid decentralization of authorities to the district level under Law No. 22/1999 and Law No. 25/1999 accelerated illegal logging, corruption, and waste. Decentralized forest licensing allowed districts to issue many small logging parcel leases. This led to uncontrolled harvesting of the remaining accessible lowland forests, including those in protected areas.[15] In 2014, many of these authorities were pulled back to the provincial level.[16]

5. **Economic valuation of ecosystem goods and services**: Perhaps the most important missed opportunity in the NRM Program's policy and institutional support activities was the failure to effectively pursue natural resource valuation and extended cost-benefit analysis (also known as total economic valuation) as a core part of NRM policy and investment planning. Limited attempts made during NRMPs I, II and III were not pursued further, as discussed in the following sections. Economic valuation of all ecosystem goods and services and evaluating the full costs of replacing or substituting lost or degraded goods and services, are difficult tasks (though a great deal of methodological progress has been made in the past 20 years). The economic valuation of the Bunaken Marine National Park and nearby coast,[17] for example, was instrumental in obtaining local government support for the multi-stakeholder management strategy that NRMP II pursued.

Key Successes in the Terrestrial Sector

1. NRMP II and its partner, PeFoR (People, Forest and Reefs Program) project in Kalimantan, which focused on CBNRM and governance, helped support the first efforts at recognizing indigenous forest people's customary (*adat*) rights (see the Case Study C in Annex 1).

2. Working at the local government level, NRMPs II and III made some modest achievements in capacity-building. Especially important was the training provided to local government and non-government stakeholders on the economic aspects of sustainable forest management, in particular resource valuation and landscape-level approaches to NRM.[18] In the end, however,

[15] Curran et al., Lowland Forest Loss (2004).
[16] This retrenchment is laid out in Law No. 23/2014 and explicitly mentions mining, forestry, maritime affairs, and fisheries.
[17] Final Report of the Indonesian Natural Resources Management Program Components Implemented through the Environmental Policy and Institutional Strengthening Indefinite Quantity (EPIQ) Contract: May 1997 to October 1999.
[18] From NRMP II task order reports and Bunaken Marine National Park case study.

most of the successes of NRMPs II and III and its partners were in the areas of co-management of protected areas and CBNRM (see next section) rather than national-level policy and institutional reforms.

3. NRMP I and NRMPs II and III worked with some success on a CBNRM approach in the Bunaken Marine National Park (MNP), the Sungai Wain Protection Forest in East Kalimantan (see Case Study D in Annex 1), Lake Tondano in North Sulawesi, and Manokwari in what is now West Papua. These programs demonstrated the value of engaging local communities, consulting with them on customary property and access rights to resources, and on demonstrating the value to the GOI of a more collaborative approach to management. This is especially important in protected areas where co-management by communities and government is the most appropriate strategy. The Bunaken and Sungai Wain case studies in Annex 1 explore what worked/did not work in those CBNRM interventions. In sum, the multi-stakeholder management approach used in those and other sites worked well with technical support from the project. In the absence of continuing government support for this approach after the end of the project, however, the CBNRM efforts gradually weakened and lost much of the previous progress in resource governance.

Lessons Learned

1. **Fundamental policy reform without political will and behavior change will not work.**

2. **The lack of institutional capacity, technical expertise, and transparency can limit the government's capacity for sustainable forestry management.**

3. **Rapid decentralization without proper preparation adversely affects NRM.**

4. **It is critical to correctly incorporate costs and benefits into forestry planning and management.**

Marine Sector Activities

Activities in the marine sector under NRMPs II and III can be divided into: (i) the work of the Coastal Resources Management Programs (CRMPs) I and II—also called *Mitra Pesisir* (Coastal Partners)—which constituted most of the assistance in this sector; and (ii) the activities of NRMPs II and III, which focused primarily on marine national parks, especially Bunaken Marine National Park in North Sulawesi.

The policy and institutional aspects of marine resource management interventions in the NRM Program's early period were relatively limited. No government ministry counterpart existed when the NRM Program started. Although marine fisheries was part of the Department of Agriculture, the relevant Directorate General had a very limited policy brief. Existing marine biodiversity and conservation management laws, policies, and regulations were the result of international conventions and (limited) fisheries regulations and statutes.[19] No marine protected areas (MPAs)

[19] Dahuri, et al. (1996) provides a good summary of the status of marine-related conventions, statutes, and regulations before the start of the CRMP project.

existed apart from a few marine national parks under the Department of Forestry. This was the case despite Indonesia being the largest archipelagic nation in the world, with extensive and highly biodiverse marine ecosystems.

CRMPs I and II (1996-2005). Given the limited policy and institutional environment for marine affairs and fisheries, CRMP I began work at the subnational level in 1996. The project introduced the concept of the community MPA based on a similar, successful grassroots model in the Philippines. CRMP I focused on building the capacity of communities to manage community-based and village-level marine sanctuaries, plan integrated coastal management, and develop village-level ordinances and policies (see Case Study B in Annex 1).

Because district and provincial governments' budgets for marine affairs and fisheries were insufficient to meet the needs of their resource authorities during this period, USAID's marine program provided support for priority needs, especially after the start of decentralization. This is discussed later in the case study on the institutional development of the Ministry of Marine Affairs and Fisheries (MMAF) (see Case Study E in Annex 1).

The MMAF was finally created in 1999. However, it took several years to staff the ministry, develop a set of policy priorities, and institute arrangements with universities, provincial and district governments, and other organizations, and to establish relationships with Indonesian NGOs and international organizations. CRMPs I and II became USAID's main marine and coastal assistance vehicles in Indonesia in the early period of the NRM Program. CRMP I introduced many new tools and models of coastal governance to counterparts and partners, such as model laws, coastal atlases, local land use development plans, strategic planning models, and village-based small marine protected areas or stewardship agreements. Crucially, CRMP's counterpart at the Bogor Agricultural Institute (IPB) was tapped by President Abdurrahman Wahid to organize the new ministry, and CRMP I was influential in developing the structure, priorities, and early policies of the MMAF. CRMP II continued this work but with a greater focus on the legal and regulatory development of the new ministry and training national ministry staff (see Case Study E in Annex 1 for more details).

Challenges

1. **Limited size and scope of both CRM projects**: The World Bank's Coral Reef Rehabilitation and Management Project (COREMAP) I, with a nearly $13 million budget, was designed to provide the core funding for MMAF during this period. Compared with the very large size of the sector and the low capacity of the ministry staff when it was first established, the CRM projects were meant to catalyze effective field site best practice and develop institutional capacity at the national level. This limited the impact that the projects had at the field level.

2. **Capacity**: The newly established Center for Coastal and Marine Resource Studies at IPB became CRMP's primary research, training, and policy analysis partner. However, though IPB is recognized as the university with the most experience in integrated coastal management (ICM) in the region, its capacity was insufficient to meet national needs. A lack of professional capacity continued to be a serious constraint to advancing ICM in Indonesia during the CRMP period. Despite substantial investments by multilateral agencies, there are still few professionals with ICM experience in Indonesia, particularly at senior levels of organizations.

3. **Design and implementation flaws**: Several such flaws were observed at CRMP field sites in North Sulawesi and Balikpapan.[20] These included:
   a. Reliance on cash and non-conservation development aid as an entry point into villages (which was not sustainable);
   b. A focus on "key" stakeholders as opposed to all relevant stakeholders; and
   c. Insufficient attention to the wider legal framework for village regulations and ongoing legal disputes concerning the validity of those regulations.

Key Successes in the Marine Sector

1. Building on the model field program for community MPAs established in North Sulawesi in 1997, CRMP I expanded to the provinces of Lampung and East Kalimantan. While each field program had a different emphasis, all shared a common philosophy and dependence on **building partnerships with local and national stakeholders.**

2. **The Lampung Atlas was the basis for the first provincial coastal strategic plan in Indonesia.** The atlas was the success and result of CRMPs I and II. The Lampung Atlas is an interpretive document that provides a resource-mapping perspective on the basic characteristics and use of coastal zones. It is suitable for education purposes and offers a holistic overview of NRM for district and provincial decisionmakers and managers. The atlas led to: (i) a significant budget allocation for coastal management actions; (ii) a successful community-based mariculture demonstration site and village management plan; and (iii) a successful small island community-based marine sanctuary with village ordinances and management plans. The Lampung Atlas was replicated in seven other provinces with no external funding and provided the basis for additional marine management allocations derived from local funding.

3. Under CRMP I support, the **first inter-jurisdictional watershed-based management plan in Indonesia was signed** by two regional heads, the Mayor of Balikpapan, and the Governor of East Kalimantan, and the Minister for Marine Affairs and Fisheries. **Legal reforms were initiated at the district, city, and provincial levels** based on an approved Balikpapan Bay management plan, and a **new NGO called Save the Bay was created to focus solely on CBNRM**. The NGO was awarded two government and two private-sector contracts.

4. The USAID-developed **models of community-based coastal management had a regional impact**, as the World Bank and Asian Development Bank used the models to design their $13 million COREMAP initiative. The key elements are participatory management by communities, stewardship, and the introduction of some tools to assist implementation. Successful outcomes included greater community awareness of the need to manage marine resources, rules to stop fishing within reserves, and willingness to participate in resource monitoring.

5. The **CRMP I influenced the passage of a national coastal management law**, supported the MMAF's organizational development and strategy, and aided in the creation of an Indonesia Coastal University Network (ICUNE) for coastal and marine resources studies at IPB. The project also established a national peer-reviewed coastal and marine journal (*Jurnal Pesisir*) and, through ICUNE, conducted biannual conferences that brought together practitioners,

[20] Crawford, B. et al. (1998).

academics, and government administrators to examine current experience with coastal management.

6. Since the Coral Reef Rehabilitation and Management Project (COREMAP I and II) later adopted this approach, **more than 342 community-based MPAs have been established covering a total of 9,970 hectares in 19 districts of Indonesia**.[21] As discussed later in this study, the MPA model provided two very important benefits for Indonesia's marine fisheries. First, MPAs provide refuges for fish species to restock themselves and avoid overfishing of specific species. Second, MPAs, combined with training in best practice fishing, have enabled artisanal fisheries the core source of coastal livelihoods, to secure more sustainable fisheries.

7. During CRMP, aware of the lack of ICM in Indonesia, **IPB provided a successful series of ICM training modules to national and local stakeholders**. This training raised stakeholders' awareness about the need for ICM and some provinces have started to incorporate the ICM concept into their strategic planning.

Lessons Learned

1. **A larger and more sustained effort is needed to achieve impact in an underserved sector. However, it is not clear that the CRMP cooperative agreement structure alone could have handled a much larger project, especially given the very low level of government capacity in marine affairs and fisheries at the time.**
2. **Cross-sectoral work at the field level is necessary since coastal and marine issues impinge on fisheries, tourism, trade and industry, agriculture, etc. Early involvement of the provincial development planning agency (Bappeda) in field activities is critical because part of its role is to coordinate development activities among local agencies.**
3. **Government and academic partnerships are essential to building national ministry capacity, but a sufficient number of partnerships are needed to achieve critical mass.**
4. **Successful community-based marine protection areas require in-depth understanding of the relevant socioeconomic structures and incentives, and enough time to become established.**

Many of the issues described above were related to the short timeframe for these interventions and the lack of appropriate local partners. CBNRM, whether terrestrial or coastal/marine, requires a prolonged bottom-up effort to achieve sustainable results and build sustainable institutions. These and other lessons are discussed further in Case Study B, which reviews three contrasting CBNRM interventions during the NRM Program. The general lesson, which USAID/Indonesia adopted from 2010 onward, was that the marine sector needed its own programming focus with greater emphasis on building national and regional government capacity to collaborate effectively with communities and the private sector on CRM.

[21] Hanson, A. et al. (2003).

The CRMP and NRMPs II and III interventions in Bunaken Marine National Park were important in introducing the concept of community-based marine conservation areas and district-level marine conservation areas. These efforts provided important governance and technical management lessons and created the foundation—with technical guidance, policies, and regulations—for the future development of marine conservation areas in Indonesia.

III. VALUE AND IMPACT OF THE NRM PROGRAM'S INITIATIVES IN THE FIRST 15-YEAR PERIOD

In retrospect, efforts to achieve significant national policy or institutional reforms for sustainable forestry, particularly during the New Order era, achieved few concrete results. This was because there was little demand for such reforms in the national government and the private sector. This was also the case for other donors working in the sector. Nevertheless, NRMPs I, II and III contributed in key ways.

Terrestrial Programming

1. The overall NRM Program successfully incorporated civil society organizations (CSOs), local governments, and community-level resource users (including businesses) into terrestrial resource management (especially protected areas management) and, to some extent, forestry planning, particularly after 1998.

The inclusion of civil society, local governments, and community players was possible because the program had long-term Indonesian project staff and partners working to identify local champions and was flexible in developing the right entry points for interventions. These factors effectively established a viable project design model for future NRM activities. Using local partners as collaborators also provided a means for structuring dialogues and joint activities in contexts where such interactions were rare. The multi-stakeholder management innovation was critical to decentralized institution building and practical policy testing through dialogues. Various iterations of multi-stakeholder management mechanisms made it into all three of the major terrestrial program interventions. They also produced evidence-based results that the immediate stakeholders could evaluate for wider replication and adoption. These local interventions provide potential models for sectoral regulation and operational guidance. This was the case for the Sungai Wain model, which influenced the Department of Forestry's protected areas management guidance (see Case Study D in Annex I).

2. USAID programming impacted the process for developing a policy and institutional reform agenda.

Because Indonesia is such a large and diverse country, standardized models for resource management for national government agencies are likely to be too general or inapplicable to many specific resource management problems, and to the cultural and economic contexts in which they exist. The proper role for national legislation should be to provide a clear statement of property and individual rights and responsibilities for various kinds of resource users, and a balanced framework for the roles of government, the private sector, communities, and CSOs. Beyond that, detailed regulation and resource management guidance should be based on sound policy and institutional needs assessments, and an understanding of natural resource constraints at the regional and local levels, especially at the landscape level.

3. The impacts of CRMPs I and II at the national level were more important than the projects' relatively small size.

These projects provide evidence of the value of flexibility and nimble responses to rapidly changing policy and institutional conditions, as was the case with the creation of the MMAF in 1999. Coastal and marine field activities, especially at the community level, became much more important and national in scope in the second 15-year period of the NRM Program, as described in the next section. However, CRMP's foundational work on community MPAs, later picked up by other donors including the World Bank, was very important, especially to the new MMAF. This was also true for its training and development of guidance for both the national and local government agencies addressing marine and fisheries concerns.

4. THE SECOND 15 YEARS: DECENTRALIZATION AND INTEGRATED SITE-BASED NATURAL RESOURCE MANAGEMENT, 2005-2020

I. SHIFT IN THE USAID/INDONESIA NRM STRATEGY

After the end of NRMP III, USAID/Indonesia altered its NRM programming strategy.[22] This was due, in part, to the passage of the U.S. Government's Water for the Poor Act of 2002 to support foreign assistance activities in three areas: (i) access to clean water and sanitation services; (ii) improved watershed management; and (iii) increased productivity of water. USAID/Indonesia merged its Health, Food for Peace, and Environment offices to create the Office of Basic Human Services. The new office initiated several special objectives, including the 'Maintaining a Healthy Ecosystem' objective for which the Environmental Services Program (ESP) was a flagship activity.

Another reason for the programming shift was ongoing institutional disappointment at being unable to achieve more sustainability-focused policy and institutional reforms in the forestry sector. Furthermore, as authorities over forestry had been devolved to the district level, the Department of Forestry was less of a focus of reform and improved governance efforts. It is also noteworthy that clean water, sanitation, and nutrition have relatively easy-to-measure health and quality of life indicators and metrics, as well as relatively straightforward governance roles for national and local governments. This was much less the case for biodiversity conservation and ecosystem management during ESP. To this day, water and sanitation activities remain a priority for the Mission's Environment Office, though they currently fall outside the NRM Program.

II. THE ENVIRONMENTAL SERVICES PROGRAM (ESP) (2004-2010)

The protection of forested watersheds, especially critical upper watersheds, was an integral part of the Environmental Services Program (ESP). However, the project's sites and activities shifted away from the previous policy and institutional reform priorities of the Department of Forestry and local governments, and from co-management of protected areas, to a focus on clean water supplies for

[22] This was reflected in USAID's 2004-08 Country Development Strategy Statement (CDSS).

urban and small-town customers. The Coordinating Ministry for People's Prosperity became ESP's national partner, rather than Bappenas.

Key Successes of ESP

1. **ESP included a new programming element, namely local land-use development planning, known as spatial planning**, to improve the evidence base for rational zoning and enforcement of land-use decisions for biodiversity conservation, broader natural resource utilization, and watershed protection. In Indonesia, it involves a cross-sectoral and multilevel governance process for coordinating land-use planning.[23] The introduction of capacity-building for spatial planning and its use in development planning have been featured in subsequent USAID terrestrial and marine environmental programs. It has been a very useful tool, especially for integrated landscape-level resource management (see Case Study F in Annex 1 for more details).

2. ESP had a strong emphasis on **mobilizing community groups**. By the project's end:

    a. 57 local policies related to land tenure and community access rights had been developed;
    b. 477 new community groups practicing improved NRM had been formed;
    c. Thousands of individuals had been trained in aspects of natural resource and biodiversity conservation; and
    d. 83 community-based solid waste management systems were developed benefitting a total of 37,835 people.[24]

3. The main approaches used to mobilize communities included practical skills training. ESP's **innovative field schools** featuring peer-to-peer learning provided some of this training. **Communications and media campaigns** also played a major role in the community-based activities of the project.

4. ESP's **use of water as an integrating theme to address human and environmental health** resonated strongly with local communities and national government agencies. ESP also successfully emphasized the need to safeguard the role of stable and functioning ecosystem services in providing clean water, and the links between ecosystem services and human health.

[23] Louis Durey and Esther Mwangi. "Land-use planning in the Moluccas: What of Customary Tenure Security?" Center for International Forestry Research Working Paper 143 (2014).
[24] DAI, Final Report (2010): 199-202.

5. The best practices that ESP developed, tested, and applied at scale in watershed management created **a cadre of advocates** supporting these changes at the national level (e.g., with Bappenas and the Department of Forestry, later the Ministry of Forestry in 2010)). This was especially important in the new era of decentralization. ESP also built **a grassroots network of leaders and service providers**. The project used local partners as technical resources, often sending community consultants to new areas or supporting study tours from one province to another. This effectively established a grassroots network promoting innovative work.

Spatial Planning: Article 1, paragraph 5 of the Law on Spatial Planning (Law No. 26/2007) explains that land use planning encompasses efforts at developing a system of spatial planning, spatial utilization, and control. Spatial planning in this sense involves the identification of problems, the exploration and analysis of alternate courses of action, and the making of decisions by government officials and their implementation. This system of spatial management is based on certain principles, the most important ones being sustainability, protection of the public interest, and legal certainty and justice. [From: *Spatial Management in Indonesia: From Planning to Implementation*, p. 23.]

Lessons Learned

1. **In contrast to previous water services or watershed management projects, ESP understood the importance of building lasting local constituencies for environmental services, so the project's initiatives could achieve long-term sustainability.**

2. **A major lesson from ESP was the importance of institutional governance reforms in maintaining improvements in environmental services delivery. This was especially the case for water utilities (PDAMs). ESP's management reforms and capacity-building work (e.g., setting realistic coverage targets and creating standard operating procedures for benchmarking) significantly improved service delivery.**

3. **ESP's creation of a large body of activist technical cadres working at the community level ensured the continued delivery of environmental services in those communities and facilitated the spread of these and other services (e.g., health, nutrition, small-scale agriculture, and public education) to other communities. This effectively leveraged the ESP investments well beyond the end of the project.**

III. THE ORANGUTAN CONSERVATION SERVICES PROJECT (OCSP) (2007-2010)

The Orangutan Conservation Services Project (OCSP) was the main terrestrial biodiversity conservation activity funded by USAID/Indonesia during the 2005-2010 period. The project worked to reduce or eliminate threats to orangutans in Kalimantan and Sumatra by addressing the major drivers of those threats—forest conversion, unsustainable logging, and wildlife trafficking. Habitat loss was, by far, the biggest threat to orangutans. Orangutans prefer high conservation value forests, especially lowland forests, though they can survive in reduced numbers in degraded forests. This is still the case today. To reduce habitat loss, the OCSP concentrated its efforts on establishing partnerships with communities and private sector stakeholders, and on improving conservation and local land-use development planning with local governments. However, due to large-scale land use changes, orangutans remain a highly threatened species and are listed as critically endangered by the International Union for the Conservation of Nature.

Female orangutan resting with child at Tanjung Puting National Park. Tanjung Puting National Park is a key orangutan habitat in Central Kalimantan. As many as 2,000 orangutans were said to be living in the park in 2010. Major threats to this area are illegal logging, wildlife crime, forest fires, palm oil plantations, and zircon and gold mining. USAID, through its Orangutan Conservation Services Project, supported the long-term protection of critically endangered wild orangutans and their habitat. The result is over 1.3 million hectares of priority orangutan habitat in Sumatra and Kalimantan are currently under improved management.

PHOTO: TONY DIOGO FOR USAID INDONESIA

Key Successes of the OCSP

The OCSP's most notable achievements can be grouped as follows:

1. **Conservation management:** Nearly 1.3 million hectares of orangutan habitat were placed under improved management.

2. **Private sector engagement:** The OCSP improved management of 207,000 hectares of high conservation value forests within concession areas.

3. **Policy:** The OCSP facilitated the completion and formalization of the Ministry of Forestry's National Orangutan Strategy and Action Plan 2007-2017 and assisted in the passage of nine relevant laws and regulations.

Lessons Learned

1. **Building and maintaining good relationships with key stakeholders and high-level government officials early in the project and during project implementation is critical. A good relationship can yield a high-level public endorsement and secure funding to ensure sustainability of the institutions the project developed.**
2. **Capacity building is necessary for staff at lower levels of government (to conduct local land-use development planning) and at the park level (for management planning).**
3. **Maintaining good communication and cooperation with CSOs, local communities, law enforcement agencies, and media outlets helps with enforcement of law and regulations to combat habitat construction and other threats to wild orangutan populations.**

IV. THE INDONESIAN FORESTRY AND CLIMATE SUPPORT PROJECT (IFACS) (2010-2015)

In 2010, USAID/Indonesia returned to its previous biodiversity conservation and NRM strategy of the earlier NRM period. In the context of decentralization, the Mission shifted to an integrated, site-based strategy for both terrestrial and marine activities. Orienting project designs around landscapes and seascapes was also appropriate and necessary for integrating the new mandate of climate change adaptation and sustainable landscapes (i.e., climate change mitigation) into project designs. The Mission's shift was supported through a new sustainable landscapes funding earmark that became available through President Obama's commitment to the international initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD+).[25] Biodiversity funding and the orangutan earmark also remained consistent funding sources.

IFACS Design and Changes from the Earlier NRM Program

Both the U.S. Ambassador and the State Department strongly promoted the Indonesian Forestry and Climate Support (IFACS) Project's renewed support for forestry and protected areas management. However, the IFACS design was different from previous NRM projects. First, IFACS was designed to incorporate climate change mitigation into project activities. Second, the project focused on integrated site-based and landscape-focused approaches to interventions. The policy and institutional components of the project emphasized capacity-building of district and provincial governments in the various project landscapes, especially with respect to spatial and land-use planning, zoning, and private and public land-use investments. The project used various tools to build greater public participation into natural resource planning and management.

IFACS was based in the four provinces of Aceh, West Kalimantan, Central Kalimantan, and Papua, and focused on a total of eight diversified landscapes. These ranged from lowland and peat swamp forests to upland landscapes. All landscapes included land under some form of protection. IFACS developed four "themes" that were meant to embody collections of key tools and approaches used across its four components: (i) land and forest governance; (ii) forest management and conservation;

[25] The + sign in REDD+ signifies additional activities to foster conservation, sustainable management of forests, and enhancement of forest carbon stocks.

(iii) private sector, local enterprise, and market linkages; and (iv) project coordination and management. These themes were:

- Strategic Environmental Assessments - Low Emission Development Strategies (KLHS-LEDS);
- Multi-Stakeholder Forums (MSFs);
- Community Conservation and Livelihood Agreements (CCLAs); and
- Conservation Management and Monitoring Plans (CMMPs).

Programming Challenges with the Ministry of Forestry

The project got off to a slow start because of management issues with the Mission, disagreements over final site selection, and difficulties recruiting and keeping qualified Indonesian staff. In addition, the Ministry of Forestry was concerned about the absence of a ministerial or national-level assistance component. A midterm evaluation pointed out that implementing partners did not coordinate on the four components closely enough to meet targeted programming gaps within USAID's overall terrestrial programming. As a result, IFACS had less time to achieve the project's targets and planned impact, including delivering site-based results.

IFACS' site-based contributions to national government priorities in reducing greenhouse gas emissions, conserving biodiversity, and improving forest management were apparently not very well known at the national level. This was probably a consequence of having an entirely decentralized landscape-based structure. Despite a lack of ministerial-level signals of support for IFACS, some district government agencies did actively support the project. This district-level support was a consequence of the IFACS team cultivating close relationships with district government offices and providing training for their staff.

During IFACS implementation, several national policy initiatives based on field experience were developed. A very useful policy analysis of the damaging environmental and social impacts of the long-standing ban on exports of raw or semi-processed rattan was presented to the Ministry of Forestry. IFACS also carried out national-level policy assistance to support institutions and mechanisms for climate finance. Finally, a presentation on the policy impacts of IFACS was given to the Ministry of Environment and Forestry (merged from the two separate ministries in 2014) during the transition to the LESTARI project. Since LESTARI was intended to be a continuation of IFACS, the policy and institutional focus remained primarily at the district and provincial levels.

The IFACS project introduced many new tools for NRM. Several of these tools were designed to support CBNRM practices. Indonesian law already required the use of some of these tools. For example, Law No. 32/2009 on Environmental Protection and Management mandated the use of strategic environmental assessments (KLHS) for risk management and to support spatial planning and climate change adaptation efforts. IFACS conducted many training short courses on developing and utilizing KLHS low emission development strategies (LEDS) for local governments and communities, and socialized the concepts to partners through multi-stakeholder forums (MSFs). The project also trained communities to develop community resource agreements, and to prepare and implement climate change adaptation action plans in the form of CCLAs. These climate-adapted livelihood strategies based on LEDS were another way of integrating climate change action into community conservation management at the IFACS sites. In fact, to the extent possible, climate change actions were closely linked to the resource endowment, ecological conditions, and prevailing land uses in each of the targeted districts and communities.

Stakeholders, local governments, and local communities considered the KLHS-LEDS tool successful. Combined with building government capacity to develop and use spatial data analysis, the KLHS-LEDS enabled the incorporation of high conservation value areas and vulnerable, strategic, and high-risk areas into spatial plans. Districts participating in improved KLHS processes initiated a range of other activities, such as discontinuing inappropriate mining licenses and relocating land conversion activities away from high conservation value areas. Finally, the KLHS-LEDS process facilitated bridge-building and a wider participation of stakeholders in planning processes.

IFACS promoted the success of the MSFs by working with existing governance structures, developing more effective processes for meetings, and providing capacity-building opportunities. MSF members appreciated the fact that IFACS treated them as a group, without respect to hierarchy, and focused on positive content and solutions.

Key Successes of the IFACS Project

Notable IFACS achievements through the five years of the project included:

- Nearly 5.3 million tons of CO_2 were sequestered, as a result of IFACS-led activities to improve forest management and restore deforested areas.
- Over 1.4 million hectares of land (138 percent of the target value) were placed under improved and sustainable NRM.
- Investments leveraged from private and public sources to support forest conservation and climate change adaptation initiatives totaled over $5.2 million, 130 percent of the target value.
- Almost 13,000 people (106 percent of the target value) received economic benefits from LEDS activities promoted in the IFACS landscapes.
- 269 villages signed CCLAs confirming their commitment to engage in conservation efforts to protect HCV forest areas bordering their villages. This represented 160 percent of the original target value of 160 CCLAs.

Lessons Learned

Several lessons from the IFACS project are pertinent to future USAID terrestrial programming in Indonesia, as summarized below. To a certain extent, they influenced the 2015-2020 LESTARI project.

1. **Because of the relative absence of USAID in the forestry and land use sectors between 2004 and 2010, the decision to launch a large, multiple-site, integrated forestry project without adequate prior consultation with the Ministry of Forestry unnecessarily hurt relations with the GOI. A more gradual, phased-in approach to project implementation, including the use of flexible, rolling design approaches might have been a more effective strategy.**
2. **Similarly, while landscape-focused interventions are more likely to include resource users and economic interests, the approach also may diffuse project resources over a broad array of activities, possibly lessening the project's impact**

on any one of them. Greater emphasis on mapping early key interventions and stakeholders can make later stage interventions more successful.

3. **Developing good spatial planning capacity is not enough to generate sustainable development results if political decisionmakers disregard the resulting capacity.**
4. **If spatial plans are not paired with sound economic analysis of the full costs and benefits of investment alternatives, they will be much less persuasive to decisionmakers.**
5. **IFACS appears to have validated the role of broad-based participation in NRM-related decision-making leading to biodiversity conservation, especially in the use of tools such as the CCLAs, CMMPs, MSFs, and the KLHS-LEDS process.**
6. **The landscapes and districts where IFACS worked were quite different with respect to culture, landscape types, socioeconomic circumstances, and local government capabilities. It was clear that one implementation approach would not suit all sites. To optimize the effectiveness of project implementation across the various landscapes, IFACS used two fundamental approaches. The first was to provide staff with guiding principles or approaches to service delivery rather than formulas or standardized plans. The second was to build on what already existed at the sites, such as using existing regulatory frameworks.**
7. **The main drivers of success were: (i) engendering local ownership and CCLAs that built on local wisdom; and (ii) supporting the emergence of local champions.**

V. LESTARI PROJECT (2015-2020)

Overall Management Strategy

The terrestrial NRM project, LESTARI (2015-2020), uses a collaborating, learning, and adapting (CLA) management model, which USAID/Washington has championed for several years. The project uses a theory of change (mandatory for users of biodiversity earmarked funds) and continuously tests underlying assumptions about threats and drivers of those threats in landscapes where it works. The project's technical approach is based on three integrated and synergistic technical components as direct drivers of improved land management: (i) forest and land use governance and advocacy; (ii) conservation co-management; and (iii) private sector engagement. Each component has its own theory of change. As with IFACS, LESTARI receives biodiversity funds for its activities on conservation and high biodiversity habitats, and sustainable landscapes funding for its work on climate change mitigation and complementary activities outside of high biodiversity areas.

LESTARI's evidence-based approach requires that the project team work closely with its government and non-government partners in ongoing reflection and self-assessment. In support of the CLA approach, and as part of an internal midterm assessment, the LESTARI team conducted field visits in 2017 to develop landscape-specific situation models (LSMs) and to conduct a political economy analysis (PEA). USAID/Washington encourages PEAs where appropriate and where evidence is strong enough to develop robust political economic models. As Section 1 of this study shows, the political and economic drivers of NRM in Indonesia since the colonial era have been studied extensively. While these studies are prominent in academia, they have not yet directly influenced NRM programming, which has focused more on governance and technical approaches to sustainable management through individual economic tools, such as user fees, licensing, etc.

A PEA examines the underlying power dynamics and political drivers of landscape-specific threats. Along with a project's other management tools, a PEA should complement and strengthen the underlying theory of change to help the project team develop new site-specific strategies and approaches. A PEA is also supposed to help projects focus on advocacy and gaps in political will, presumably targeting key actors in the model, including their structural incentives and disincentives. The output resulting from the PEA will necessarily require a separate outreach, communications, and constituency-building strategy.

LESTARI is using largely the same tools developed or required for use in the IFACS project. The LESTARI team is also trying to develop greater collaboration with the private sector to incentivize companies to invest in sustainable land management projects and practices. In addition to its capacity-building efforts and technical assistance for provincial and district governments, LESTARI is also working directly at the village level. Some examples of successes to date are provided below.

Key Successes of the LESTARI Project to Date

In 2014, authority for NRM in Indonesia shifted from the district to provincial level of government. However, district-level engagement is still very important for policy and programming implementation, forest management and spatial planning, land-use decisions, and investments in NRM activities. A strong engagement approach is also important because of the lack of government capacity at the district level. The LESTARI project team has recognized that implementation at this level must be complemented by other direct approaches that reinforce capacity-building to have an impact on the overall landscape and to achieve project objectives. The team is trying to do this by implementing a landscape-wide land use management approach, including for areas adjacent to protected forests.

- For example, the 2017 zonation process for the Singkil Wildlife Reserve in Aceh was recommended as a model for other conservation areas in Indonesia. This zonation was the result of support from LESTARI and technical input by peatland management experts from the U.S. Department of the Interior (USDOI). The assigned land-use zones provide greater legal protection for this protected area, which is mostly peatland rich in biodiversity and carbon stocks. Meanwhile, communities have been granted access outside the wildlife reserve for sustainable utilization, which is expected to reduce conflicts and encroachment on the wildlife reserve.

- In Central Kalimantan, by employing a Free, Prior, and Informed Consent (FPIC) process, four villages covering 25,000 hectares of degraded peatland in Pulang Pisau District agreed to the blocking up of canals to re-flood these peatlands. This reduced the risk of forest and peatland fires that have devastated this province in recent years. Local communities, local government agencies, the provincial Public Works Agency, and the Peatland Restoration Agency (BRG) regarded this process as a successful and innovative model. The process resulted in a binding written agreement with each of the four villages. The head of BRG expressed interest in applying this approach to comparable and larger peatland restoration areas in Sumatra.

- While natural forest timber production is not as dominant an industry as it was at the start of the NRM Program, it still impacts forests. In Central Kalimantan, LESTARI has carried out training in reduced impact logging (RIL) techniques for seven timber concessions to better enable the adoption of more sustainable practices. A total of 126 field staff from these

concessions received training, while the estimated concession area impacted reached about 400,000 hectares. While RIL by itself may not be enough to prevent serious damage to forests if the intensity of felling per hectare is too high, there is still a significant difference between RIL and conventional logging practices.[26] Also, training alone will not necessarily lead to actual adoption of RIL techniques, particularly if concession owners do not feel there is a business case to do so (see Annex I, Case Study A: Promotion of Reduced Impact Logging).

- Through the Yayasan Orangutan Sumatera Lestari-Orangutan Information Centre (YOSL-OIC), a project grantee, the LESTARI team improved management in 61,000 hectares in Manggamat Protected Forest in South Aceh. This region covers significant areas of orangutan habitat. Specific activities included:
  i. Initiating a Coordination and Communication Task Force for the Mitigation of Human-Wildlife Conflict (with the Conservation of Natural Resources Center [BKSDA] of South Aceh District Government), which was formalized through a decree issued by the district head.
  ii. Formulating joint action plans to delineate shared responsibilities among stakeholders and LESTARI for the mitigation of human-wildlife conflict.
  iii. Evacuating vulnerable orangutans and identifying forest areas suitable for their translocation.
  iv. Forming Human Orangutan Conflict Response Units (HOCRUs) to investigate and prevent conflicts between orangutans and communities in South Aceh, West Aceh Daya, and Aceh Singkil. HOCRUs conduct routine monitoring of pockets of orangutan habitat and calculate populations of orangutan habitat units in Manggamat Protected Forest and Leuser National Park in South Kluet.

- The Borneo Orangutan Survival Foundation (BOSF) continued reintroducing orangutans into Bukit Baka Bukit Raya National Park. The foundation also monitors them one year after their release. In Year 2, BOSF released 45 orangutans into the park, reaching a total of 55 released. This activity was supported by capacity-building in human-orangutan conflict mitigation for park staff (including training, joint patrol, and engagement during release activities), members of two village communities (from a total of five planned activities), and the private sector.

Lessons Learned to Date

1. **LESTARI's advocacy and awareness initiatives—with civil society participating in identifying strategic issues and supporting advocacy programs—have been effective in spurring some policy changes. An example is its linking of the economic impacts of poor resource management with extreme weather events (especially floods and fire). In the Leuser and Katingan-Kahayan landscapes, the midterm village development plan has increased understanding of the wider environmental issues and disasters that these areas face. Sharpening such approaches could help to drive further policy changes.**
2. **Some initiatives at the sub-landscape level are now advanced enough to become opportunities for cross-project learning and models for scaling-up. Notable**

[26] Plinio Sist, *Reduced-impact logging in Indonesian Borneo: some results confirming the need for new silvicultural prescriptions* (2003, 427).

examples are zonation within Forest Management Units and the use of FPIC approaches for peatland restoration.

3. **Guidance from the national government on climate change targets at the subnational level has been unclear. Without a system of incentives and disincentives aimed at lowering greenhouse gas emissions, provinces and other subnational entities will only engage in tangible climate change mitigation and/or LEDS opportunities on a voluntary basis. This represents an ongoing constraint for LESTARI's climate change mitigation efforts at the landscape level. Therefore, it is clear that, without a national policy framework that includes subnational regulations projects, such as BIJAK (see next section) will continue to be needed to help develop such a framework.**

VI. THE BIJAK PROJECT (2016-2021)

In 2016, USAID/Indonesia launched a national-level environmental policy project, called the Build Indonesia to Take Care of Nature for Sustainability (BIJAK) project for the period 2016-2021. Working closely with MOEF, BIJAK has two main themes: (i) improving management of conservation areas and forests; and (ii) increasing protection of key species. The project aims to "scale up" field-tested models and approaches and capture policy lessons. Implementation includes training workshops, forums and media events, and drafting model policies and regulations. BIJAK partly builds on the USAID/Indonesia Democracy, Rights, and Governance (DRG) Office's Pro-Representasi (or ProRep) project. In the first two years, ProRep developed policy communities on health and the environment to provide a vehicle for supporting the Indonesian non-governmental community working on representative rights, and for educating members of the Indonesian Parliament on this topic. A chief focus of this effort was support for indigenous people's forest tenure rights (see Case Study C in Annex 1). BIJAK's policy agenda is very broad, and the project team and partners have close relationships with MOEF.

Key Successes of the BIJAK Project to Date

- One of BIJAK's notable achievements in its first year was assisting MOEF in revising the 2011-2030 National Forestry Plan. With BIJAK assistance, MOEF increased the allocation of forest areas for community activities from 5 million to 14 million hectares and reduced conversion forests from 12.5 million to 6.5 million hectares.

- Working with the MOEF Directorate General of Ecosystem and Natural Resource Conservation, BIJAK technical assistance resulted in the approval of zoning maps for 50 out of a total of 54 national parks, drafting of zoning/blocking maps for 248 out of 498 conservation areas (non-national park areas), including under the One Map policy.

- BIJAK successfully advocated for the expansion of Indonesia's list of protected species under Government Regulation No. 7/1999 on the Preservation of Plant and Animal Species. MOEF enacted this new list in July 2018 as a result of efforts by BIJAK and Indonesia's conservation community, adding 244 additional species to the protected list, including 46 species specifically targeted for inclusion by BIJAK.

- BIJAK support to LIPI resulted in non-detriment findings and harvest quota protocols for hammerhead and silky sharks, both heavily traded species, to reduce the number of sharks traded to a sustainable level.

- BIJAK support to MOEF resulted in Indonesia's Biodiversity Clearing House Mechanism, used to monitor the implementation of the Indonesian Biodiversity Strategy and Action Plan and the Convention on Biodiversity's Aichi Targets.

Lessons Learned to Date

Based on the challenges that emerged by the end of the second year of BIJAK's implementation, several important lessons learned were used to inform planning and moving forward.

1. **Project focus and impact. Adjustments made to BIJAK's theory of change meant that the projects' activities became more focused and integrated, bringing together BIJAK's four technical components to improve the management of conservation areas and forests, and to improve the protection of key species by combating wildlife trafficking. This also helped to smooth the relationship with the Directorate General of Ecosystem and Natural Resource Conservation, allowing the project to achieve a number of results in regulatory reform.**
2. **Managing the expectations of partners. Since the start of BIJAK's implementation, GOI partners within MOEF have frequently requested that BIJAK dedicate substantial time and effort on office tasks. The project's technical personnel always handle these requests tactfully by checking the appropriateness of the requests with their relevance to the Theory of Change. However, controlling such expectations while maintaining a good relationship is challenging, particularly as there is frequent staff turnover with the agency.**
3. **Grant implementation. An important part of BIJAK's approach is implementing activities through grant-under-contract mechanisms. With the refocusing of the project at the end of Year 1, the development, redesign, and review of grants took longer than normal, which not only delayed the progress of activities, but also resulted in BIJAK losing some opportunities for making an impact. With BIJAK's technical direction now settled, BIJAK is in a good position to approve grants once again and take advantage of opportunities.**

VII. CTI AND CTSP: REGIONAL PRECURSORS TO THE NRM PROGRAM'S INTEGRATED SEASCAPE PROJECTS (2005-2013)

After the end of the CRMP II and NRMP III, USAID/Indonesia's shift away from biodiversity conservation and NRM left marine affairs and fisheries without Mission support. Fortunately, USAID's Regional Development Mission for Asia (RDMA) and its Coral Triangle Initiative (CTI, 2005-2010), and the related Coral Triangle Support Partnership Project (CTSP, 2008-2013), provided support for marine conservation.[27] Both projects made important contributions to marine protected areas (MPAs) policy in Indonesia, as well as to MPA management. Perhaps most importantly, they maintained momentum for USAID marine programming in Indonesia and support for the still new MMAF (the new ministry was also assisted by the World Bank's COREMAP II project during this period.)

[27] It should be noted that USAID/RDMA also funded terrestrial activities that worked in Indonesia during this period (e.g., Responsible Asia Forestry and Trade [RAFT]).

Customary law-based fisheries conservation and management systems had long existed for small coastal fisheries, especially in eastern Indonesia. These were suppressed during the New Order era. When the CTI and the CTSP began, they introduced the concept of larger-scale, integrated, ecosystem-based resource management of critical marine habitat to the Coral Triangle Region, including Indonesia, through the planning and development of MPAs, and later ecosystem-based Fisheries Management Areas (FMAs). CTI and CTSP were also instrumental in securing Indonesian presidential-level support for the regional MPA network and marine conservation. This was critical to follow-on marine programming.

Finally, CTSP, under the regional CTI, provided important contributions to the MMAF's 2005 National Action Plan to Combat Destructive Fishing.[28] This action plan described the process for establishing national and subnational MPAs and networks, and supportive legislative frameworks. CTSP also started early work in Indonesia on marine spatial planning and analysis, and began work on sustainable financing schemes involving public-private partnerships. These activities have continued and expanded in subsequent site-based and national-level marine support.[29]

VIII. THE INDONESIA MARINE AND CLIMATE SUPPORT (IMACS) PROJECT (2010-2015)

Policy and Institutional Development

The Indonesia Marine and Climate Support (IMACS) project focused on building institutional capacity for sustainable biodiversity conservation and the sustainable management in the marine sector. Its focus was primarily at the national level, though it conducted some activities at the district and provincial levels as well (especially the small grant activities, the climate change adaptation component, and fisheries data collection [I-FISH]). Until recently, Indonesia's national fisheries policies emphasized maximizing production at the expense of long-term sustainability. IMACS sought to counter this through policies that promoted maximum economic yield for long-term profitability and the conservation of fisheries resources.

The project supported the development of the five-year MMAF Strategic Plan 2015-2019 to guide marine and fisheries programming and budgeting at the national and local levels. The plan was a critical step in ensuring sustainable fisheries management. A final external evaluation of IMACS recommended that future marine programs utilize the MMAF Strategic Plan as a point of reference for program development. It also recommended the development of a joint or integrated work plan between USAID and the MMAF.

IMACS developed tools and provided critical support to districts, and later to provinces, that lacked the capacity to adequately provide technical or monitoring support for MPAs, or coastal and marine fisheries under their jurisdictions. One of these tools addressed illegal, unreported, and unregulated fishing (IUUF) through a digital dashboard developed by IMACS to estimate economic losses from IUUF practices. This demonstrated an effective partnership between IMACS and the MMAF to ensure the sustainability of Indonesia's fisheries.

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[28] Indonesia Fishing and Aquaculture Industry Handbook: Strategic Information, Regulations and Opportunities, International Business Publications, Washington, D.C.

[29] Given that the CTI and CTSP were not funded from USAID/Indonesia, but from a USAID Regional Mission for Asia based out of Bangkok, key successes and lessons learned have been omitted in this case.

The Community-Based Approach

IMACS used some CBNRM approaches but worked mainly with district governments. Activities included: (i) raising community awareness and providing training on climate change mitigation and adaptation measures; (ii) providing better fisheries training to fishers; and (iii) enhancing disaster preparedness planning and organization. The formalization with district governments of some of the community-based MPAs improved their management thanks to increased financing, technical assistance, and improved infrastructure.

Key Successes of the IMACS Project

1. IMACS **successfully developed the Indonesia Climate Adaptation Tool for Coastal Habitats** (I-CATCH) to assess community vulnerability to climate change. **The project implemented the tool in 100 villages across 10 districts in the provinces of West Nusa Tenggara and Southeast Sulawesi. I-CATCH is now being used by the MMAF outside these two initial target provinces**. An IMACS evaluation recommended that information from the I-CATCH assessments be integrated into district plans for climate change adaptation.

2. IMACS' **CBNRM approaches** strengthened coastal community resilience for climate change adaptation and disaster risk reduction, and sustained fisheries livelihoods and food security.

Lessons Learned

Throughout implementation of IMACS, the team experienced various challenges that can help to inform other work as follows:

1. **Agree on roles, responsibilities, resources, and performance metrics of the primary partners early, and review and validate periodically. The IMACS team worked extensively and effectively with the MMAF and provincial marine and fisheries service agencies (DKPs). Efforts could be enhanced further by clearly laying out expectations for both teams, including accountability and performance checks. This includes identifying the level of staff and other resources needed for activities so that both the GOI and the project can plan properly. Annual work planning is a logical time for such agreements, though the GOI budgeting cycle needs to be considered.**

2. **Engage government partners early and often in designing and focusing work (and the private sector too). Clearly, ownership and sustainability were greater when the MMAF saw specific IMACS interventions as aligned with ministry priorities. Enhancements to the sector can be made in a number of ways but listening to government officials carefully and choosing approaches aligned with current priorities (e.g., IUUF) will be more effective. Involving the private sector early when designing interventions accrues similar benefits.**

3. **Understand and work with the full range of institution counterparts affected by initiatives. Although I-FISH is a database that might logically belong to the MMAF unit with a data mission, the system has greater relevance and hence greater demand from units responsible for managing capture fisheries or leading research. Involving them heavily enhanced buy-in and demand for the new system.**

4. **Know and link closely to government schedules. To effectively plan climate change adaptation investments at the local level or provide analytical inputs to strategic planning at the national level, it was critical to know and have deadlines and milestones that synchronized with GOI planning and budgeting cycles.**

5. **Stakeholder mapping should include individuals as well as organizations. To ensure success, the project should understand all units in the organization responsible for a particular activity, and the key people within those units at both technical and strategic levels and configure partnerships and day-to-day working interactions accordingly.**

6. **The GOI and the private sector need each other, and this can be a great benefit. In the case of IMACS, the eco-certification of benefits to the private sector depends in part on government management of fish stocks. The GOI in turn can make great use of the private sector's data and information, as well as exposure to international players. Together there are substantial incentives for cooperation and sector improvement.**

IX. THE MARINE PROTECTED AREA GOVERNANCE (MPAG) PROJECT (2012-2015)

Marine Site-Based Management

Support for marine policy-making and institutional development at the national and subnational levels continued under the Marine Protected Area Governance (MPAG) project. The project focused on MPAs. However, it prioritized using local resources and empowering stakeholders (including experts hired by the key NGO consortium) to assist the MMAF Directorate General with regional and national MPAG implementation. The key NGO consortium was led by WWF-US and consisted of Conservation International (CI), the Coral Triangle Center, The Nature Conservancy (TNC), the Wildlife Conservation Society, and WWF-Indonesia.

The first marine program included capacity-building activities at both the national and regional levels. The project established a competency-based national standard for managing MPAs and climate change impacts. Though capacity-building covered a wide range of topics for diverse target audiences, the internalization of training content within the MMAF is an ongoing need.

MPA Development. The MMAF saw the marine program's investment in strengthening an effective national system of MPAs as a valuable contribution to its marine resource management system. MPAG supported the establishment of eight MPAs covering nearly 5 million hectares. MPAs were established on 16 of 20 million targeted hectares throughout Indonesia. By the close of the first marine program in 2015, an additional 16 MPAs had been identified as priorities for future projects.

The MMAF also approved the Technical Guidelines for Evaluating the Management Effectiveness of Aquatic, Coastal, and Small Island Conservation Areas (E-KKP3K), and seven guidebooks and decision support systems (DSSs) prepared as part of the marine program. Six MPAs were evaluated using the E-KKP3K tool. The development of this tool provided a foundation to evaluate and improve MPA management in the future, including during the Sustainable Ecosystems Advanced (SEA) project. The decree on standard competencies issued with the marine program's support has

set a new standard/benchmark for MPA managers to better manage MPA development. The effectiveness of executing this competency standard will depend on the supporting institutional personnel mechanism within the relevant national and local government agencies.

MPAG developed a plan for a national sustainable MPA financing mechanism by establishing a dedicated Technical Management Unit (UPTD) to manage revenue from the tourism industry in accordance with requirements set out in a MMAF ministerial decree. This plan to develop a sustainable financing framework for future MPAs, institutionalized at the national and local levels, was designed to help ensure future MPA development and maintenance. However, the process has been delayed at the Ministry of Finance. Prevailing regulations prohibit the direct use of collected funds, and any revenue collected must first go to the local government treasury. Any budget reallocations are contingent on prior agreement with the local parliament and must be reflected in the annual budget. Thus, under the current financial regime, any revenue collected from marine resources cannot automatically be allocated to finance marine activities.

MPAG, through CI, one of its partner organizations, developed the Local Government Public Service Agency (BLUD) model to provide marine and fisheries services at the local level. Despite this progress, the framework for a sustainable financing mechanism to support the future development of MPAs still needs to be institutionalized, including a realistic assessment of the likelihood of relying on external funding.

Fisheries Management Areas (FMAs) and the Ecosystem Approach to Fisheries Management (EAFM). Drawing on technical assistance provided by MPAG, a new approach to the management of Fisheries Management Areas (FMAs) across Indonesia was developed and adopted by the National Ecosystem Approach to Fisheries Management (EAFM) Working Group. EAFM indicators and an evaluator network were put in place, establishing a baseline from which to measure FMA management effectiveness. Following the completion of the MPAG project in 2015, NGOs then continued this work using other resources and drawing on the experience of experts appointed to the Working Group from the Conservation of Area and Species (KKJI) Directorate in the MMAF. The hope is that, with GOI leadership of the Working Group, together with the active involvement of all stakeholders, this will ensure collective ownership of the outputs and the longer-term sustainability of FMAs across Indonesia.

Key Successes of the MPAG Project

Most of MPAG's successes were related to provision of technical support to the GOI which, in turn, led to several first ever outputs by the GOI.

1. A relatively complete database on marine conservation is now in place managed by the Conservation of Fish Areas and Species (KKJI) under the Directorate General of Marine Ecosystem Management in the MMAF. This database includes a user interface located on the KKJI website[30] for those wishing to access its data, relevant regulations, and research studies. The website will continue to be managed by the MMAF and is expected to become a stable resource for marine conservation stakeholders, including regional marine and fisheries agencies, university students, and other institutions.

[30] http://www.kkji.kp3k.kkp.go.id

2. The MMAF adopted EAFM for the management of FMAs in Indonesia, along with EAFM measurement indicators. Outputs produced by the working group were the first of their kind in Indonesia and were subsequently adopted in the preparation of management plans for 11 FMAs in Indonesia. This work continues post-MPAG. A database has been developed to compile the results of these measurements from various places. Realizing the scope of this work, the working group chose to develop a network of universities to implement the use of EAFM indicators. There is a long road ahead, however, in the implementation of these new FMA management plans. At least an initial consensus has been reached on how EAFM can be adopted, so that conservation, institutional, and socioeconomic aspects can be incorporated in the management of FMAs across Indonesia.

Lessons Learned

The lessons learned during MPAG's three years of operation fall into the following three main areas, together with reflections on the overall approach of the two projects, IMACS and MPAG:

Internal MPAG operations, including those relating to the operational systems of the five NGO consortium members, and working according to the agreed work-plan and specific budget.

1. **MPAG implemented activities at specific sites. In many cases, MPAG consortium member NGOs had been working at these sites with funding from other sources. When these sites came under MPAG annual work-plans, activities and targets proposed for the sites were often different from those funded by other sources. In these cases, MPAG funding helped provide a more holistic approach to MPA management. MPAG also initiated activities at sites that had never received NGO assistance, while at the national level MPAG primarily worked with the MMAF on new activities that had no other source of funding beyond MPAG. In both cases this raised questions over the sustainability of these activities post-MPAG.**

2. **The strengths of the MPAG NGO consortium notwithstanding, given that they operated across several sites, this sometimes hampered program efficiency. Exchanging resources between different NGOs or work sites was sometimes difficult to facilitate. Such arrangements also made it challenging to highlight specific MPAG achievements. In many cases it was easier for MPAG to report out and document achievements on ministerial level work, as these were relatively new activities that were solely funded by MPAG.**

3. **MPAG consortium NGOs often had their own particular institutional strategy and approach in place, which differed from one NGO to another. In several cases, these approaches were incompatible with the MPAG work-plan, which required some activities to be completed within certain timeframes. MPAG often had to customize its work-plan in accordance with NGO consortium work-plans.**

Collaboration with the Ministry of Marine Affairs and Fisheries.

4. **MPAG work at the national level focused on the development of ministerial decrees, which were also a ministerial target. The MMAF identified the target for a certain fiscal year and supported this with a budget allocation such that a**

significant effort was put into the production of these decrees over the year. However, when MPAG tried to introduce the concept of a marine Trust Fund in Indonesia to fund MPA-related activities, as there was no specific mention of a sustainable financing mechanism in the MMAF's annual work-plan, this failed to make progress. As a result, by the conclusion of MPAG's operation, the MMAF had still not taken steps toward the establishment of the Trust Fund, despite the ministry admitting that such a mechanism was strategic and important. Such initiatives therefore need to be incorporated into the ministry's annual work-plan if they are to gain adequate traction.

Working with local governments and local institutions.

5. **MPAG's main counterparts in local government were the DKPs. Within these agencies there was competition for attention from different sectors, with marine issues often not considered a high priority. DKPs were often not regarded as important work units and were not valued by local leaders. Consequently, MPAs were often neglected in local government annual work-plans. As a result, together with the DKPs, MPAG often had to convince local leaders of the importance of the fisheries sector and the economic potential of effectively managed MPAs.**

6. **Political processes often resulted in frequent changes in leadership, which sometimes had a significant impact on MPAG's work on the development of regulations and policy. Both district and provincial heads often depended heavily on input and advice from their subordinates, including the heads of DKPs. To address this challenge, MPAG made efforts to communicate directly with local leaders and to mobilize experts to provide technical assistance to local governments. Engaging the participation of local universities was sometimes useful in resolving communication breakdowns with local policymakers and often facilitated the issuance of regulations or policy on effective MPA management.**

Comparing the IMACS and MPAG projects.

7. **Given Indonesia's vast marine area and resources, both the IMACS and MPAG projects agreed with the MMAF that the only way to demonstrate the utility of FMAs was to develop and implement a Fisheries Management Plan for a specific region, and then assess its replicability to other regions. USAID's marine program was a crucial resource during development of the Fisheries Management Plan for 718 FMAs in the Arafura Sea. This helped to demonstrate the GOI's commitment to sustainable capture fisheries achieved through an "ecosystem approach to fisheries management" (first introduced by CTI). However, to achieve a fully integrated approach, IMACS and MPAG objectives should have been combined into one project.**

8. **Of several approaches to capacity-building, the MMAF and provincial/district DKPs felt that the MPAG approach offered the most appropriate model for future conservation management interventions. However, this collaborative approach, which involves working closely with the MMAF and DKPs, also needs to focus on artisanal and commercial fisheries sustainability, especially in the context of**

climate change impacts and integration of fisheries and marine biodiversity conservation.

X. THE SUSTAINABLE ECOSYSTEMS ADVANCED (SEA) PROJECT (2016-2021)

Policy and Institutional Development

Similar to IMACS, the Sustainable Ecosystems Advanced (SEA) project also emphasizes institutional capacity in marine management and fisheries. The SEA project supports a policy program to promote an ecosystem approach to fisheries management (EAFM) of fisheries and marine resources, which the IMACS project had introduced. The SEA project aims to: (i) enhance the conservation and sustainable use of marine resources by reforming fisheries management and promoting MPAs to enhance fisheries productivity, food security, and sustainable livelihoods within the target areas; and (ii) strengthen the leadership role and capacity of the MMAF and local governments to promote marine conservation and sustainable fishing.

Fisherman holding skipjack tuna in Buru. A small-scale fisherman holds a skipjack tuna caught using handline fishing, an environmentally friendly fishing technique, in Buru Regency, Maluku. Lack of knowledge about hygiene standards and handling practices often leads to contaminated and poor-quality fish. Some exports are rejected from international markets. USAID has helped address this issue through targeted interventions, such as provision of handline equipment and training to small-scale fishers, and assistance to four fisher associations in Buru and Ambon to achieve Fair Trade certification. PHOTO: INDAH RUFIATI FOR USAID/INDONESIA

As part of this effort, SEA's partner, Marine Change, is focused on improved supply chain efficiency, more sustainable products, and better financial performance among Indonesian companies engaged in marine resource utilization. This represents an evolution from IMACS, which focused more on the MMAF than the private fisheries industry. This strategy of sustaining the marine fishery resource and its productivity while reducing losses in storage, processing, and distribution should result in greater profitability for companies engaged in the fisheries value chain, and in improved health of the marine environment. SEA will also encourage companies to obtain certification from the Marine Stewardship Council.

The SEA project supports the MMAF nationally and at the subnational level in Maluku, North Maluku, and West Papua provinces in developing and implementing marine spatial planning (MSP) systems. The aim is to build capacity in the management of marine resources databases to achieve conservation, sustainable and productive fisheries, food security, and sustainable livelihoods. SEA further supports provincial governments in developing and finalizing MSP documents and implementing regulations, thus extending the work undertaken at the national level in IMACS down to the provincial level. Finally, the project ensures that customary laws and the rights of communities related to marine resource uses are recognized in marine regulations.

Focus group discussion with fishers in Buano Island. Based on information from local fishers and results from a coral reef survey, the USAID SEA Project proposed a larger MPA that includes the full bay and seven coral islands, for a total of more than 25,000 hectares around Buano Island. These activities were conducted to help the Maluku Provincial government develop an MPA around Buano Island due to the importance of fisheries and ecotourism in the area. PHOTO: YOGA PUTRA FOR USAID SEA

Key Successes of the SEA Project to Date

- **Ecosystem Approach to Fisheries Management (EAFM)**

  At the national level, the project accelerated support for institutional capacity-building in the MMAF through the introduction of advanced analytical models to undertake stock assessment analysis. This resulted in the completion of preliminary stock status assessments for eight sites nationally.

  Across the three provinces of focus (North Maluku, Maluku, and West Papua), vessel registration activities were launched by the MMAF through support from the project, resulting in 650 vessels being processed for registration.

  At the site level, data gathering by SEA Project partners for the North Maluku snapper and grouper 'stock unit' were finalized and analyzed to measure the effectiveness of future fishery interventions. Preliminary harvest control strategy recommendations were developed for reef fisheries in Raja Ampat, anchovy fisheries in Raja Ampat and flying fish egg harvesting areas in Fakfak.

- **Marine Protected Areas**

  At the national level, the project supported the draft revision and strengthening of several national policies related to MPAs. In particular, a new approach was developed to define the goals, objectives, criteria, and indicators for the biophysical, social, economic, and governance aspects of MPA networks; and the key regulations related to the establishment and development of MPAs were reviewed with recommendations provided to merge these frameworks into a more effective simpler single structure. The project also trialed these proposed adjustments in September 2018.

  At the provincial level, work accelerated and all new and existing MPA sites were recognized and incorporated into each province's marine spatial plan; and all but one of the MPAs were successfully transferred under provincial jurisdiction as required by Law No. 23/2014. Work also

began on the development of provincial MPA networks. A draft provincial MPA network design was completed for West Papua, and all remaining provincial network designs will be finalized in 2019.

- **Marine Spatial Planning**

  The project successfully supported North Maluku to finalize, legalize and enact its marine spatial plan (*Rencana Zonasi Wilayah Pesisir dan Pulau-Pulau Kecil*, or RZWP3K). The plan effectively secured 31.9 million hectares of marine environment, with an allocation of 1,081,727 hectares for MPA establishment. Likewise, in Maluku, the project supported the finalization, legalization and enactment of the RZWP3K, securing 14.2 million hectares of marine environment, with an allocation of 2,904,812 hectares for MPAs. In both provinces, the plans have also allocated two nautical miles from the coastline to be an area prioritized for small-scale fisheries, particularly subsistence fishers. The West Papua RZWP3K should be completed in 2019.

- **Law Enforcement**

  At the national level, law enforcement activities were advanced through project training for inspectors and cross-agency managerial staff on effectively implementing the Port State Measures Agreement, and the production of a white paper outlining recommendations for institutional implementation.

  National efforts to support community surveillance groups were also accelerated, with the project supporting the design of a standardized national model and the initiation of a nationwide modular training-of-trainers program for community surveillance group support. Preliminary training under the model was delivered through support from the project in North Maluku, Maluku, and West Papua, through which all existing and prospective groups in SEA Project sites were also identified, and their current status assessed. The project supported the MMAF to develop a policy paper providing recommendations for adjustments to MMAF Ministerial Regulation No. 58/2001 on the Implementation Guidelines for Community-based Surveillance Systems.

  Another key achievement for law enforcement was the production of a draft policy paper to guide and inform the development of a National Action Plan to Combat Destructive Fishing. Complementing this, stakeholder forums were convened through project support across all three provinces to promote networks for combating illegal fishing.

- **Providing Enabling Conditions for Sustainable Marine and Coastal Management**

  Enabling conditions are situations that must occur prior to an initiative to enable the initiative to be successful. Under the project, four key strategic approaches are considered to achieve sustainable marine and coastal management.

- **Creating Demand through Awareness Raising and Advocacy**

  The SEA project worked to refine and better articulate behavior change-related targets. As such, SEA engaged 103 ‘champions’ in target societies to help influence and promote change.

- **Increasing Incentives for Marine Stewardship**

  Three new Fair Trade fisher associations were set up on North Maluku (taking the total to seven), with two of these successfully establishing product traceability systems in line with Fair Trade standards.

  The establishment of large-scale Fishery Improvement Projects (FIPs) through the project's engagement with private sector members of the Indonesian Association of Pole and Handline Fishers related to tuna fisheries in North Maluku and Maluku. Three more FIPs started operating in 2018 in Maluku and West Papua, with the aim of meeting Marine Stewardship Council (MSC) standards.

5. ASSESSMENT OF THE NRM PROGRAM'S INITIATIVES BY THEME

I. NRM PROGRAM POLICY AND INSTITUTIONAL DEVELOPMENT INITIATIVES

The NRM Program strengthened the use of evidence from field activities and rigorous analysis in developing a policy and institutional reform agenda. Because Indonesia is such a large and diverse country, standardized models for NRM are likely too general or inapplicable to many specific resource management problems, and their cultural and economic contexts. The proper role for national legislation in NRM is to provide a clear statement of property and individual rights and responsibilities for various kinds of resource users, and a balanced framework for the roles of government, the private sector, communities, and CSOs. Beyond that, detailed regulation and resource management guidance should be based on sound policy and institutional needs assessments and an understanding of natural resource constraints at the regional and local levels.

At this point in Indonesia's development, the country's natural forests are a patchwork in many places and are not likely to support a significant timber industry. As noted previously, the NRM Program missed an opportunity to pursue natural resource valuation and extend cost-benefit analysis as a core part of its policy and investment planning. There were limited attempts to demonstrate these methodologies during NRMPs I, II and III, but this was not pursued further due to the significant lack of capacity among government staff, who applied the methodologies differently. Economic valuation of all ecosystem goods and services, including the full costs of replacing or substituting for lost or degraded goods and services, is difficult.

However, a great deal of methodological progress has been made in the past 20 years, and in the GOI policy environment specifically over the past five years. The economic valuation of the Bunaken Marine National Park and nearby coast, for example, was persuasive in gaining local government support for the multi-stakeholder management strategy that NRMP II pursued. However, government legislation regarding economic valuation is rather narrow, especially for forest ecosystems where the primary valued resource is timber, though the former Ministry of the Environment did value hydrological functions and forest carbon. The larger point is that

implementation of valuation, especially in forests, has not been undertaken, primarily because interests inside and outside the GOI are not consistently supportive.[31]

Overall, the NRM Program's policy and institutional efforts were more successful in the coastal and marine sub-sectors than in the terrestrial sector. In the former, projects provided consistent and long-term support at the national and subnational levels. Conversely, the program's impact on terrestrial policy and institutional support at the provincial and district levels was more mixed. Although the results have been more mixed, nonetheless the BIJAK project has demonstrated that good results are still possible: in its first year it supported MOEF to revise the 2011-2030 National Forestry Plan, increasing the allocation of forest areas for community activities from 5 million to 14 million hectares, and reducing conversion forests from 12.5 million to 6.5 million hectares. In sites with good governance, USAID's capacity-building activities using spatial planning tools or participatory approaches to zoning, protected areas management, or climate change mitigation were important.

II. COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT (CBNRM)

Biodiversity funds have formed the core of the NRM Program's budgets since its inception in 1990. Current guidelines on the use of biodiversity funds focus on reducing threats to biodiversity and high conservation value ecosystems, which are frequently in areas with relatively low human population densities. However, lessons learned from the 30 years of the Mission's NRM Program show that local communities are important constituents and stewards for conservation, since they benefit directly and indirectly. As such, although CBNRM activities have not been a strategic goal of the NRM Program they have been a feature of most projects.

The NRM Program's CBNRM interventions have mainly focused on conserving the stability and sustainable functioning of the target species or resource systems, whether a coral reef complex, tropical forest, wetland, or other ecosystems. Program partners learned that long-standing social relations of production in a community significantly influence NRM practices. These relationships are not static; they can be destabilized by external interventions—a government decision to place a particular resource under a different use classification (e.g., protected area or timber concession), or the intrusion of different cultural practices into a community's environment of commercial fishes or migrants. Partners also learned that a local champion respected in the community should lead the intervention. In NRM Program interventions, this was frequently an Indonesian NGO leader, though it could also be members of the community who stand to gain from a more equitable and sustainable management of the resource. The NRM Program and its NGO and local government partners further discerned that a successful CBNRM intervention requires dialogue and persistence to build resilient local institutions to support broad-based resource rights. Relatively short four- or five-year assistance projects may not always be the right mechanism for this kind of approach.

Investing in CBNRM activities to protect target ecosystems, especially their provision of ecosystem goods and services, entails balancing perceived short-term and long-term trade-offs. One such trade-off is short-term resource exploitation/conversion for development versus resource protection. The impacts of climate change on terrestrial and marine ecosystems have greatly exacerbated the consequences of these trade-offs, as the increasingly frequent forest fires in Kalimantan and Sumatra demonstrate. Communities, particularly rural ones, are particularly

[31] Phelps, et al., 2017, p. 20.

vulnerable to imbalances in these short-term/long-term trade-offs. Conservation of biodiversity ensures the continued provision of vital services and acts as a buffer to the damaging impacts of climate change on vulnerable communities.

III. INTEGRATED, SITE-BASED NATURAL RESOURCE MANAGEMENT

Large and small-scale entities (plantations, commercial fishers, subsistence farmers, and artisanal fishers) use landscapes and seascapes in similar ways. But the ecological, cultural, historical, political, and economic differences between landscapes and seascapes are significant, and are important in the design of interventions.

Experience with USAID's terrestrial and integrated, site-based marine projects suggests that integration of management activities across sectors in landscapes and seascapes is an effective way to achieve synergies and development impact. However, the tools used to facilitate integration, for example, participatory spatial planning or CCLAs, must be continually assessed on how well they achieve evidence-based development outcomes. This is especially the case for tools that address climate change vulnerability, since these cut deeply across all sectors in a landscape/seascape.

The impact and value of the NRM Program's integrated, site-based projects have been variable, which is not surprising given the large number of actors, activities, and locations involved. Designing and implementing landscape and seascape-focused interventions is more likely to result in the inclusion of more resource users and economic sectors than other types of more narrowly defined projects. Hence, a site-based approach to project design and implementation may spread project resources over a broader array of activities, possibly lessening the project's impact on any one of them. This means greater emphasis should be placed on identifying and prioritizing implementation of early interventions that are likely to be critical to the success of follow-on activities.

The use of clear theories of change can assist in this process. The impact of integrated, site-based projects is also greater for local and regional governments than for the national government. The long-term value of this type of project is clearly critical to more sustainable NRM and the conservation of high biodiversity ecosystems. If a project is successful in improving the capacity of governments, communities, and the private sector for collaborative NRM governance, and succeeds in ensuring that good governance is put into practice, it will have been a very valuable intervention. Sustaining good governance in this area also requires long-term systematic monitoring and continued support for CSOs, including "watchdog" organizations, well after the end of the project.

6. USAID/INDONESIA'S MANAGEMENT OF THE NRM PROGRAM IN A PERIOD OF GREAT POLITICAL CHANGE

The almost 30-year period of the NRM Program has been a time of great political change in Indonesia. The country was transformed from a highly centralized, authoritarian state into a largely decentralized, multi-party democracy with a vibrant civil society. Indonesia continues to improve the human resources and associated institutions it needs to support its economic and social development.

Within this context it is worth examining USAID's longstanding support to Indonesia for management of its natural resources for development. The structure of the NRM Program has evolved over time, and its performance is a useful indicator of USAID/Indonesia's responsiveness to

a rapidly changing political and economic environment, and of its contribution to the long-term U.S. interest in environmental sustainability.

I. USAID/INDONESIA'S RESPONSE TO MAJOR POLITICAL EVENTS AND IMPACTS ON THE NRM PROGRAM

Indonesia is an insular state, both literally and figuratively. The largest archipelagic state in the world, the country sought to build a national identity and remain politically non-aligned during the early post-war period. Sukarno was a founding leader in the Non-Aligned Movement, hosting the 1955 Bandung Conference that launched the movement. Following the removal of Sukarno from power, Indonesia did not play an active and visible role in the world (despite its size and potential), especially during the New Order period (1966-1998). The one exception was related to the exploitation of natural resources (fossil fuels, forest resources, minerals, and others) for export, which was one of the main reasons that the country was such an important, strategic partner of the United States.

The NRM Program's Interactions with the GOI at National and Local Levels

Since the 1980s, USAID's NRM programming that focused on institutional development, pilot projects, and/or support to civil society have always had some involvement at the national and subnational levels. The country's rapid decentralization beginning in 1999 required an equally rapid and major shift in USAID programming toward the subnational levels of government.

At that time, the NRM Program's strategic objective was "decentralized and strengthened natural resources management." Thus, unlike much of the rest of USAID/Indonesia's portfolio, the Environment Office did not have to make significant changes in its programming focus, except (to some degree) in its policy agenda. While the program always had an emphasis on public participation and strengthening democratic institutions, the political space for supporting these norms was constrained during the New Order era.

This changed significantly in 1999, though the opening of Indonesia's political system was very uneven. The mass media and CSOs quickly became much more openly active, including attempts to hold government and the private sector more accountable for the management of the nation's natural resources. Ethnic and religious conflicts, long suppressed, also re-emerged. However, structural and bureaucratic behavior change within government to make it more responsive to its constituents was slow compared with the speed of change and level of political instability. In fact, corruption and unsustainable natural resource exploitation increased because of the deep financial crisis that eventually ended the New Order era, and because of the policy uncertainty caused by swift decentralization. Weak district-level governance and legal oversight of the newly empowered districts also loomed large.

Except for the five-year period 2005-2010, USAID/Indonesia's principal GOI partner for its environment and NRM portfolio over the nearly 30-year period reviewed here was Bappenas. This was mainly because USAID had long collaborated with Bappenas in many development sectors (not just the environment). But it was also because the NRM portfolio is cross-sectoral and Bappenas has been strategically flexible and supportive of working with district and provincial governments. Nevertheless, the Mission's NRM programming slowly but decisively shifted to a greater focus on local and provincial development actors, including Bappeda, the provincial equivalent of Bappenas.

To assess the value of USAID's investments in its NRM Program, the impact of the program nationally and in the provinces and districts where it worked must be considered. Since the early 1990s, the marginal value of the program's activities and investments has declined at the national level but has increased in the regions. There are several reasons for this. Not only was planning and decision-making highly centralized in the 1990s, but the political and economic crises that precipitated the end of the New Order regime, while severely affecting the regions, were addressed through reforms and institutional changes at the national level. Decentralization boosted the value of NRM projects to provincial and district governments. Likewise, the value of USAID's NRM activities in eastern Indonesia was more important than in western Indonesia because the levels of institutional and human capacity for NRM were lower in the east. This is still the case.

Impact of Globalization on the Mission's NRM Program

Financial and economic globalization has had a major impact on Indonesia, which has a very large natural resource endowment and increasing levels of industrialization. Financial globalization was, of course, the principal cause of the Asian financial crisis starting in 1997 that led to sweeping political and economic changes in Indonesia.

Globalization has vastly accelerated levels of natural resource exploitation in Indonesia, including the changes in forestland conversion to plantations (primarily oil palm). This is due to foreign and domestic direct private investment and weak governance of Indonesia's natural resource endowment. Prolonged ecosystem degradation ultimately disrupts the provision of vital ecological goods and services required for sustainable development, for example, water supplies, pollinator habitat, flood protection, and many other services.

On the other hand, the globalization of value chains has also exposed countries to trade rule sets and standards. These have provided some opportunities for donors such as USAID to influence investor and host country behaviors directly or indirectly through foreign governments and NGOs. These rule sets, and standards range from "fair trade" product standards, certification, and chain of custody enforcement (especially in wood products), to transparency requirements demanded by some foreign shareholder groups and investment funds. Furthermore, globalization has facilitated the entry of specialized funds, such as climate change mitigation and adaptation funds, and funds from trusts and private foundations, which are aimed at specific development sectors.

The larger point is that private foreign direct investment and, for some countries including Indonesia, remittances are now far more important sources of development finance than all Official Development Assistance (ODA). This is certainly the case for Indonesia, where 9 million Indonesians (about 7 percent of the total labor force) sent home remittances worth over $8.9 billion in 2016.[32] However, this situation still offers potential opportunities for donors. Investors (naturally) tend to avoid market opportunities where risk factors are perceived to be high and returns very uncertain. However, these risk factors may be due to a lack of data and/or experience in a specific market, regulatory uncertainty, or a lack of confidence about potential partners. Donors have sometimes stepped into these underserved or new markets, for instance in renewable energy, to undertake due diligence of investment proposals, or to work with governments to create realistic and fair regulatory regimes and investment incentives. This facilitation of investment in underserved markets or the creation of public-private partnerships (at

[32] World Bank (2017).

least when the interests of investor and public partner can be aligned) remains an important function of donors and of ODA, especially in the environment, climate change and sustainable NRM, and energy fields.

II. CHANGES IN THE VISION AND DESIGN OF THE NRM PROGRAM OVER TIME

Funding Changes and the NRM Program Design Evolution

Although USAID/Indonesia had funded environmental and NRM activities since the early 1980s, it was the 1986 amendments (No. 118 and No. 119) to the Foreign Assistance Act (FAA) that explicitly required USAID to analyze the impacts of its foreign assistance on tropical forests and/or biodiversity, and to take steps ("actions necessary") to include the results and recommendations of these analyses in its future programming. As noted, USAID/Indonesia included an environmental programming strategy in its CDSS in 1988, which laid the basis for the NRMP design in 1990.

The NRMP I focused on policy reform and institutional strengthening (primarily of the Department of Forestry), and support for protected areas management and NGO initiatives. Formal postgraduate training, a feature of USAID/Indonesia's portfolio since the late 1950s (see Box 2), was a more modest part of the NRM Program. Though extensive non-degree short courses and mentoring were included, this training exposed many Indonesians to useful skills and methodologies relevant to NRM.

BOX 2: USAID's Long-term Overseas Training Legacy

Critical to USAID/Indonesia's investments in building the country's human capital were its post-graduate training initiatives. Although this investment began in the late 1950s with a group of Indonesian economists known as the "Berkeley Mafia," it was especially important in the 1970s and 1980s. A well-known member of the Berkeley Mafia was Emil Salim, who was also Indonesia's first Minister of the Environment. Hundreds of Indonesians have pursued master's and doctoral degrees in the United States in various natural resource fields, ranging from forestry and agriculture to environment and economics. Most recently, this training has continued with USAID/Indonesia's support for master's degree training through the Center for International Forestry Research. Most of these Indonesians have returned to the country and assumed important positions in government, academia, civil society, and the private sector. Several have played important roles as staff or consultants in many NRM Program activities.

Since 2012, USAID/Indonesia's Environment Office has funded 101 Indonesian graduate students to pursue advanced degrees in the United States. USAID/Indonesia has also supported, through its projects or through other U.S. government agencies working in Indonesia, other types of training such as overseas study tours, short courses, and conferences.

While the FAA No. 118/119 requirements stipulated that USAID Missions include programming (and associated budgets) for tropical forests and biodiversity conservation, they did not provide strict guidelines on how those subjects should be addressed. This allowed missions to meet the requirements through a relatively broad choice of NRM-related activities. Beginning in 2005, the U.S. Congress established the biodiversity conservation as a 'hard' earmark. This followed a funding earmark for orangutan conservation launched in 2001, in response to the Great Apes Conservation

Act of 2000,[33] which continues to the present. Since 2014, USAID projects designed using biodiversity earmark funding were required to include a "theory of change" as part of the design, implementation, and monitoring process—to ensure adherence to the code and the likelihood of evidence-based results.

The biodiversity funding earmark and code have narrowed the scope of what can be included in an NRM project compared with the 1990s. However, recent projects (since 2010) have benefited from being able to access "blended funding" that includes funds earmarked for climate change (climate change adaptation and/or sustainable landscapes).

The earmark funding requirements provided further justification for USAID/Indonesia to focus projects on integrated landscapes/seascapes in priority sites and complemented the Mission's overall support for decentralization. The stricter funding requirements have not prevented the Indonesia Mission from including policy analysis, support for enabling legislation, institutional strengthening, or work on CBNRM in NRM, but the requirements have narrowed the range of subjects that can be included. For example, a considerable number of community-based livelihood activities have been conducted with climate change mitigation funding in the terrestrial program and, to a lesser extent, climate change adaptation funding in the marine program.

Challenges and Future Trends Facing USAID/Indonesia's NRM Program

USAID/Indonesia cannot control the many challenges and trends related to sustainable NRM in Indonesia—declining foreign assistance funds, the impact of worldwide and Indonesian population growth on resources (i.e., rising demand for commodities), and the increasing effects of climate change and/or large-scale private investments on sustainable NRM. Still, this section and the recommendations of this study assume that the USAID/Indonesia NRM Program will continue through at least the next Country Development Cooperation Strategy (CDCS) period.

There are two long-standing challenges to USAID's management of its NRM portfolio, though they are not unique to either the Indonesia Mission or the NRM Program. These challenges are the high turnover rate among U.S. direct hire staff (every two to four years) and the difficulty of programming activities across sectors (or Mission offices). The first issue is a structural one that is agency-wide and unavoidable. Foreign Service Nationals (FSNs, or locally employed staff) are an important source of continuity and institutional knowledge. USAID/Indonesia's Environment Office has employed very talented and well-educated FSNs who have provided critical support and who liaison with the GOI. However, as Indonesia continues to develop, attracting and retaining good FSN talent may become difficult if the Mission cannot provide competitive salaries. Some missions have hired personal service contractors for long periods of time to provide this kind of deep knowledge and country context. This is not institutionally implemented across USAID, however.

USAID/Indonesia has retained a few retired direct hires with ample experience in Indonesia to mentor and support Environment Office personnel. This has been a useful model, but one that depends upon finding people interested and available for long periods of time. In the end, the problem is how to internalize systematic learning into Mission project design, implementation, and

[33] USAID Indonesia Country Strategy 2004-2008.

evaluation activities. Doing so would improve evidence-based interventions with the long-term goal of transitioning development objectives entirely to cooperating country partners. This has also been a concern of the Policy, Planning, and Learning Bureau in Washington, which has experimented with various approaches to systematically building learning into USAID programs worldwide.

Regarding the second challenge of programming activities across sectors (or Mission offices), opportunities to collaborate across office portfolios do emerge and should be more systematically pursued. In 2016, USAID's Environment Office collaborated with the Democracy, Rights, and Governance (DRG) Office on forest governance in Indonesia, supporting activities focused on indigenous forest peoples' rights. Two examples of this support were: (i) the investment of $249,000 in the DRG's ProRep project to help jump-start the BIJAK project by engaging national and local-level CSOs and other stakeholders working on conservation issues; and (ii) the investment of $500,000 of biodiversity funds into the Empowering Access to Justice (MAJU) project (implemented by the Asia Foundation) to engage indigenous forest communities in Papua.

In general, it is difficult to assess whether USAID's NRM investments have been more important to the terrestrial or marine environment. Given the low starting point at which marine environmental management started in Indonesia, USAID's investments in this sector have probably had the most significant impact on policy and institutional capacity. This is especially significant given the importance of marine fisheries to Indonesian food security and the tremendous biodiversity of Indonesia's marine environment, especially in its eastern regions. In contrast, USAID's NRM Program achievements in the terrestrial environment, especially in high conservation value forests, have been limited, with some exceptions, given the context of continued forest degradation and conversion, especially to plantation crops. The counterfactual—what would have been the status of high conservation value forests without USAID input—is impossible to know, though it may have been worse.

Another challenge facing the NRM Program is how to effectively address the challenge of biodiversity conservation in Indonesia over the long term. Although this is a challenge for all Indonesians, biodiversity conservation is also a vital interest and challenge for the global community. As with greenhouse gas emissions stabilization and reduction, simply funding the protection of high conservation value forests will likely not be enough. As discussed in Section 2, developing community-managed agroforestry buffer zones, which have secure tenure and protect larger tracts of high conservation value forests, can be an effective strategy for addressing sustainable livelihoods and biodiversity conservation simultaneously.

Donors generally prioritize ecosystems with high biodiversity conservation value, and that which are at great risk from climate change (especially mangroves, peatlands, and coral reefs). These ecosystems need considerable resources for their conservation. On the marine side, significant reductions in IUUF have allowed fish stocks in Indonesian waters to rebound. This should continue to be a high priority for USAID funding. On the terrestrial side, unwillingness to correctly value all the forest ecosystem's goods and services means that legal or illegal conversion of natural forests to plantation crops will continue to be the short-term market preference.

7. CONCLUSION

By the time the current mechanisms end, USAID/Indonesia's NRM Program will have lasted more than 30 years. When the program began in 1990, it was envisioned as an initiative to build the capacity for more informed and analytically robust policy-making in the natural resources sectors. The program used a creative mix of contracts, cooperative agreements, grants, and inter-agency agreements to deliver a flexible and broad range of assistance mechanisms to address complex sectoral issues, especially at the subnational levels, from communities to provincial governments.

Through the NRM Program's work in the marine sector, USAID/Indonesia pioneered support for sustainable policies and institution-building, and led capacity-building for marine conservation and sustainable fisheries at the national and subnational levels. This is a major achievement in a sector that had been previously ignored by donors.

The NRM Program leveraged a broad array of Indonesian CSOs, communities, academic institutions, and private sector actors to demonstrate to the GOI the necessity and value of broad participation in sustainable NRM. This built on long frustrated desires for democracy and decentralization. The approach was especially important in building a foundation for broader inclusion in NRM. However, this work has failed to prevent the steady erosion of Indonesia's once enormous natural forest estate. No foreign assistance program could have made a significant difference, though arguably the NRM Program has strengthened the legal and policy basis for future forest protection, especially through support for the land rights of indigenous forest people.

The greatest strengths of the NRM Program have been the broad coalition of participants in NRM, and the strengthening of evidence and science-based approaches in decision-making. The NRM Program is now well placed to position Indonesian professionals and organizations to take the lead in managing the vast natural resources that are key to the country's continued development.

8. PROGRAM LESSONS AND RECOMMENDATIONS

I. SELECTED RECOMMENDATIONS FOR USAID/INDONESIA'S ENVIRONMENTAL PROGRAMMING

The exploitation of natural resources is still essential to the Indonesian economy and its development, especially in the Outer Islands. The country's terrestrial and marine ecosystems and their biodiversity are, and will continue to be, of global importance. At the same time, Indonesia is a very large source of land-based greenhouse gas emissions. For these two reasons, a continued Mission focus on the NRM and climate change portfolio seems entirely appropriate.

Terrestrial Sector Recommendations

1. USAID's investment in terrestrial activities should **emphasize climate change adaptation and mitigation**—to the extent that USAID is able to do so under current U.S. Government policy. Along these lines, activities that support community-based agroforestry schemes are more likely to benefit forests since they help create long-term constituents for those forests.

2. Another possible activity is support for the **purchase of forest concession licenses for de facto conversion of forests to wildlife habitat conservation refuges**, such as the Borneo Orangutan Survival Foundation initiative in Central and East Kalimantan. The aim would be to use USAID sponsorship to leverage private sources of funding (from corporations, foundations, and other private donors) for these concession purchases. Simultaneously, projects such as BIJAK might advocate with MOEF to change the status of these concessions from production forests to protection forests. Many of these forest concessions are degraded and not under active management (though they are still subject to illegal logging).

3. Continuing to **promote and support traditional forest community land rights and recognize customary rights**, as USAID has done in the past, is very important. Many of these communities are constituencies for biodiversity conservation because of their long-standing cultural norms and lifestyles. USAID should support: (i) scaling up and mainstreaming of community mapping into village, district, and provincial planning documents; and (ii) environmentally sound livelihood and income generation activities based in the forests. BIJAK's work with the Directorate General of KSDAE is a potentially good model.

4. USAID/Indonesia should **consider a greater role for Indonesian NGOs and universities**, especially as part of the long-term effort to create and support sustainable community-based institutions and practices. Part of this task is to support the development of community stewardship agreements aimed at conserving the provision of ecosystem goods and services that remain essential to communities. USAID assistance to these groups would broaden the range of project implementation partners and would focus investment on individuals/organizations that will be active in Indonesia over the long term. This should be USAID's long-term institutional objective in its terrestrial programming. The broadening of partners can be achieved without increasing the management burden on the Mission.

Marine Sector Recommendations

1. USAID and the international community's focus on **reducing IUUF activities**—especially by foreign vessels—in Indonesia's very large exclusive economic zone has already benefited deep-water fishery and food security. This should continue under the SEA project.

2. USAID should also **continue supporting marine products certification to improve the fisheries value chain**. Doing so reduces fisheries waste and losses, and increases the profitability of the overall fishing effort. While the marine programming's regional emphasis has correctly focused on the biodiversity-rich areas of eastern Indonesia, interviews with MMAF staff also suggest programming selective activities in western Indonesia.

3. USAID should **continue supporting the creation and expansion of participatory management of MPAs**, including community MPAs managed jointly with provincial governments. Sustainable ecotourism and related activities in the hospitality and recreational industries are important, and their revenue should be shared with participating communities. However, the focus of USAID support should continue to be building capacity for sustainable fisheries, and fisheries processing and marketing. Protecting artisanal fisheries and restricting large commercial fishing operations from fishing grounds used by artisanal fisherfolk should therefore be a policy priority. Although USAID's focus has been on eastern Indonesia owing to its significant marine biodiversity and large fisheries, the Mission should consider finding a way to support marine conservation in western Indonesia to some extent. Support for artisanal fisheries might be an appropriate target as well.

4. To (co)manage MPAs sustainably, the **MMAF and regional governments' capacity will have to be strengthened.** Since the MMAF was established, USAID marine projects have helped build the capacity of the ministry to guide conservation and fisheries management. This has included, more recently, building the capacity of provincial Marine and Fisheries Agency offices. A review of the recent literature and interviews with stakeholders suggest that even more capacity-building and collaboration is needed with coastal and fishing communities (e.g., addressing the problem of mass tourism overrunning coastal communities and degrading coral reefs, with their associated fisheries). Furthermore, additional capacity-building is needed for effective MPA co-management with communities. This could include robust assessments to identify needs and success indicators within community empowerment programs that could be funded through small grants to NGOs or consortia of communities.

Recommendations for Integrated Site-Based Interventions

This study suggests that an integrated site-based approach to sustainable NRM would make sense even if Indonesia had not decentralized NRM authorities to provinces. However, as IFACS demonstrated, a large, multi-site contract mechanism active in many different sites may be too cumbersome to effectively manage. This is especially the case for terrestrial projects; marine projects have focused on relatively fewer sites but with more in-depth interventions at each site.

An approach worth considering may be to fund gaps within existing programs that are not currently being addressed effectively by partners already working in specific landscapes or seascapes, to enable them to extend their resources for greater impact. These approaches are already being used in the LESTARI and SEA projects.

Examples would be long-term resource monitoring or participatory economic valuation of ecosystem goods and services. A potentially useful function would be the harvesting of lessons learned from a wide range of donor-funded projects for identifying potential policy, institutional, and/or governance inputs at either the regional or national levels of government.

Finally, a network of independent, site-based projects supported by a national-level coordinating, learning, and performance monitoring project would be an efficient way to identify and share lessons among the broader conservation community.

II. NEED FOR SYSTEMATIC LEARNING AND CROSS-SECTORAL ASSESSMENTS OF THE NRM PROGRAM

Research on the NRM Program suggests USAID/Indonesia may have failed to capture lessons and findings from the NRM activities of other donor-sponsored programs, NGOs, and/or international research organizations (e.g., CIFOR, ICRAF, WorldFish) in Indonesia. Doing so would help identify innovative approaches and tools, effective project designs, and new local partners.

1. A greater emphasis on **systematic learning** from the achievements of the broad range of development actors and emerging trends in the marine and terrestrial resource sectors will help determine mid-course corrections to project designs (or project theories of change), and new activities and collaborators. This is now USAID policy and should be continued systematically.

2. **Lessons about the cross-sectoral impacts of the NRM Program** are important, but it is not clear whether these are being effectively communicated throughout Indonesia, or to USAID in Washington, D.C. The notion that a trade-off exists between economic development and the conservation of biodiversity and environmental sustainability is not valid. Healthy, stable, and diverse ecosystems are essential to food security, health, infrastructure, and climate change adaptation and mitigation, among other objectives. Justification for continued environmental programming might be easier if the cross-sectoral impacts of environmental degradation and the environmental benefits of healthy, stable, and diverse ecosystems to other sectors were better documented and more widely communicated.

3. Finally, USAID should consider **continuing and significantly expanding its use of Indonesian professional services firms, think tanks, and NGOs** in its NRM activities, especially in collaboration with the GOI. This will help regional governments become less dependent in the future on foreign donors and contractors, and will also help Indonesia to become more self-reliant in the process.

III. INCORPORATING LEARNING INTO NRM PROGRAMMING

Over the course of its nearly 30-year existence, the USAID/Indonesia NRM Program has gradually sharpened its focus to support decentralized, integrated, and sustainable landscape and seascape NRM. In a country as large and diverse as Indonesia, this is appropriate.

The breadth and diversity of Indonesia's environment implies that there are many strategies, approaches, and/or activities that could be supported by USAID, other donors, and Indonesian entities. In the same landscape or seascape, different strategies and approaches may be applied with different results. It is therefore relevant to ask how other strategies might be relevant to USAID's programming, whether they are effective in sustainably managing the country's natural resources, and if they can be scaled up for wider replication.

Definition of Learning

Capturing diffuse NRM knowledge in Indonesia requires a **learning function** in the NRM Program. In the development programming context, "learning" is a systematic process of transforming physical evidence into data, processing that data into information, and synthesizing the information as knowledge. The systematic use of learning increases self-reliance and resilience in facing life's challenges. USAID recognizes several forms of learning. One is organizational learning. An organization such as USAID uses its analyzed experience to alter its operations to more effectively achieve results, become more cost-efficient, and/or be more responsive to partners. USAID has promoted collaborating, learning, and adapting at the program or project level for these reasons.

An NRM Learning Project to Build More Self-Reliance

For a recipient country to become more self-reliant and eventually "graduate" from foreign assistance, a knowledge infrastructure is essential. This study recommends the **development of a learning-centered project** to extract evidence and lessons from NRM and climate change-related interventions in Indonesia, including those of other development actors. This would take the form of an integrated sustainable development network. Ideally, it would include foundations and research institutes, NGOs (local, national, and international), and other parties dedicated to

learning how political and economic policies impact the sustainability of development. Clearly, actors in the NRM sectors in Indonesia would be a central part of such a network. The learning-centered approach would inform future policy and institutional development project proposals, and provide policy alternatives to the government.

Project-Level Learning

To capture and understand relevant NRM knowledge, each project should incorporate a systematic learning component. This task may be complicated by insufficient distance and a lack of objectivity of a project's own learning team. The role of the learning component may also overlap with the project's performance monitoring function, which is essential to accountability and progress reporting. However, performance monitoring does not necessarily capture the activities of other development actors that may influence a project's outcomes. Trying to build a systematic learning component into each project or mechanism would also be costly and potentially redundant.

All the major USAID/Indonesia terrestrial and marine programs, and their subsidiary mechanisms address learning to a limited extent. This is done primarily through performance monitoring and reporting related to their theories of change, and their midterm and final evaluations. However, the projects do not necessarily capture the relevant landscape/seascape activities of other actors, nor the influence of national actors.

USAID's direct development resources do not have the same incremental impact they had 30 years ago. This is because Indonesia and the international development context have changed immensely. The Mission might consider supporting a learning-focused project on sustainable NRM (and climate change/resilience) that systematically draws upon the experiences of USAID and other donors, research institutes/bodies (such as CIFOR and ICRAF), foundations (such as the Ford and Asia Foundations), national and international NGOs, and other relevant sources. Some of this happens informally, as with CIFOR and ICRAF, but there is a need for formalizing learning and making it a more systematic process.

BIJAK is a partial attempt to integrate NRM learning into national policy. However, it was not designed to establish a comprehensive learning network that draws from a much broader range of experiences and practices, or that synthesizes lessons and policy proposals for broader dissemination and discussion through formal and informal media. This is necessary to build a broad constituency for sustainable and resilient development in Indonesia.

IV. INTEGRATING NRM AND BIODIVERSITY CONSERVATION INTO OTHER SECTORS

The learning approach may help to **capture useful cross-sectoral experiences**. This is because the sustainable provision of ecological goods and services is essential for food security, human health, protection of infrastructure (for example, from flooding), and to support climate change adaptation and mitigation. While it is difficult to integrate biodiversity conservation explicitly into the programming frameworks of these other sectors, recent large, site-based mechanisms (IFACS, IMACS, LESTARI, and SEA) have captured some cross-sectoral benefits in the design of their interventions. It is not known whether the lessons of this cross-fertilization have been internalized by USAID offices and projects apart from the DRG Office.

With the steady decline of high conservation value areas, USAID/Indonesia should consider **co-funding sustainable NRM components in other sectoral projects**. To some extent, this is already happening with climate change adaptation activities. What may be needed is funding (or co-funding) of restoration activities aimed at reversing steady environmental degradation, especially in areas adjacent to high conservation value locations.

CBNRM activities should be a continuing component of future USAID/Indonesia environmental programming. If anything, they should be expanded, since they can leverage local expertise and resources to achieve concrete results. With the right approach and timeframe, CBNRM activities can be sustainable and not dependent (or not as dependent) upon external subsidies.

ANNEX I: SELECTED NRM PROGRAM CASE STUDIES

CASE STUDY A: PROMOTION OF REDUCED-IMPACT LOGGING[34]

Despite decades of effort, dozens of publications, and millions of dollars spent on reforming commercial forestry in Indonesia's particularly large-scale, industrial exploitation of natural forests, poor logging practices persist. This failure to improve forestry practices is not restricted to Indonesia but is widespread in the tropics. Worse yet, foresters have been recommending implementation of methods to reduce the deleterious environmental effects of logging for over a century without significant results.[35] The failure to implement reduced-impact logging (RIL) in Indonesia is especially noteworthy given the substantial financial support provided for this purpose over the past three decades by USAID, as well as Australian, French, German, and British development agencies. This failure is particularly noteworthy given the numerous scientific publications and meetings focused on RIL. Unfortunately, interventions such as voluntary third-party certification and forest-based carbon offsets, which were intended to promote responsible forest management, have mostly failed to do so. This retrospective analysis attempts to explain this overwhelming failure, in order to inform future efforts to improve forest management practices in the forests that remain in Indonesia.

BACKGROUND ON REDUCED-IMPACT LOGGING. RIL refers to pre- and post-logging practices designed to protect advanced regeneration (i.e., seedlings, saplings, poles, and small trees) from injury; to minimize soil damage; to prevent unnecessary damage to non-target species (e.g., wildlife and non-timber forest products); and, to protect critical ecosystem processes (e.g., hydrology and carbon sequestration). RIL guidelines for Indonesia[36] call for at least the following measures: pre-harvest planning of the routes or trails to pull out felled trees, and the locations and sizes of log yards; carefully directing tree felling to facilitate moving the logs and to protect potential crop trees; restrictions on movements of ground-based equipment that move the felled logs on steep slopes and during wet weather; and post-logging closure operations to drain roads and logging trails, and to remove potential impediments to stream flow. Training and supervision of logging crews are viewed as critical for reducing the damaging effects of logging.

Skid train in East Kalimantan in 2011. PHOTO: USAID INDONESIA

The short and long-term environmental benefits of RIL have been amply demonstrated in Indonesia by both Indonesian and foreign researchers.[37] These studies showed that logging damage to the remaining tree stands (seedlings, saplings, poles, and future crop trees) and soils can be reduced substantially. Reduced damage means more rapid recovery of timber and carbon stocks, as well as

[34] This case study was written by Francis E. "Jack" Putz, Jefferson Fellow, USAID.
[35] Bryant (1914), Nicholson (1958), Redhead (1960), Ewel and Conde (1980), Hendrison (1990), Dykstra and Heinrich (1996), and Putz et al. (2000).
[36] Klassen (1996), Elias (1997), Elias et al. (2001).
[37] Bertault and Sist (1997), Sist et al. (1998), and Ruslandi et al. (2017).

less damage to hydrological functions (e.g., base flows and sediment loads), and fewer damaging impacts on wildlife. Perhaps the substantial benefits of RIL to future timber yields have not been adequately stressed but, whatever the case, there is little evidence of widespread use of RIL techniques in Indonesia. Certainly, in the 15 logging concessions the author personally visited over the past five years (of which several were certified as responsibly managed by the Forest Stewardship Council) there was little evidence of the use of RIL.

The repeated claims of the short-term financial benefits of RIL that derive from more efficient harvesting operations and better timber recovery are not based on very solid research, at least not in Indonesia. Unfortunately, the very favorable results presented in a landmark study in the Brazilian Amazon[38] have not been consistently repeated.[39]

Notwithstanding the low quality of the available analyses of the profitability of RIL compared with conventional logging in Asia, those studies consistently show that Asian loggers are somewhat justified in defining RIL as "reduced-income logging". One problem with these analyses is that they do not consider financial profitability from the perspective of all the relevant actors.[40] Another problem is that they do not partition the financial costs and benefits into the different components of RIL. Finally, many of the studies of RIL's costs and benefits were badly designed, and their results communicated poorly-problems for which solutions are offered below.

The immediate financial benefits loggers are supposed to derive from RIL are mostly from efficiencies in timber harvest operations that derive from the planning of trails for moving logs, directional felling, and close supervision. It is less clear that loggers benefit financially from more complete recovery of timber from trees that are felled, which may be why the problem persists. In any event, usable waste due to inefficient bucking (i.e., cutting of felled trees into logs) can amount to 25 percent of the volume of felled trees from which logs are extracted. In addition, no wood at all is extracted from the 31 percent of felled trees from which no wood is harvested.[41] The wood waste problem was clearly described in a 1994 NRMP I report.[42] That the very reasonable solutions proposed then, and repeatedly since, have not been implemented suggests that researchers and other advocates of more efficient utilization lack a thorough understanding of decision-making about this topic. Given that the GOI is the resource owner and the long-term health of the country's forests and forest industries is its responsibility, it is not clear exactly why forestry officials have not addressed this problem.

RIL-certified concession in East Kalimantan in 2010. PHOTO: USAID INDONESIA

Since the owners and managers of Indonesian forest industries are apparently not convinced that RIL is cheaper, a more thorough financial analysis of logging practices should be carried out but

[38] Holmes et al. (2002).
[39] For a review of this research, see Medjibe and Putz (2012).
[40] Applegate et al. (2004).
[41] Griscom et al. (2014); Griscom et al. in preparation.
[42] See Art W. Klassen, Avoidable Logging Waste Draft Report, NRMP Report No. 37 (1994).

undertaken with them as collaborators. Indeed, for the results of such a study to have any chance of changing logging practices, owners, operational managers, financial officers, and the loggers themselves should be involved in every phase of the research, from design and implementation to data analysis, interpretation, and dissemination, in addition to the researchers and relevant Ministry of Forestry and the Environment (MOEF) officials. Notes for the design of such a study are provided below.

CURRENT STATUS OF RIL IN FOREST CONCESSIONS IN INDONESIA.
Unfortunately, little peer-reviewed information about logging practices in Indonesia is available. Hoped-for sources of information include reports from both governmental (e.g., PHPL; *Pengelolaan Hutan Produksi Lestari*/Management of Sustainable Production Forest) and Forest Stewardship Council (FSC) auditors. Unfortunately, PHPL audits lack the necessary rigor and detail.[43] To be more specific, auditors spend very little time in logging areas and most of the indicators of responsible forest management they use are only indirectly related to the outcomes of logging. Similarly, after seeing terrible logging in five different FSC-certified concessions in Indonesia and reviewing the reports of auditors from those concessions, the author's faith in FSC has also diminished, at least regarding forestry practices. Here is not the place to assess this failure,[44] but it is at least partially due to the auditors' lack of training and experience in forest engineering and silviculture in general, and RIL in particular. Also, the auditors spend very little time in the forest, occupied as they are with auditing management processes and record keeping.[45] The failures of the FSC in Indonesia are also supported by data. These include the failure to detect any relationship between carbon emissions and FSC certification in Kalimantan.[46] It is telling that FSC auditors assign so few corrective action requests (CARs) that pertain to forest management,[47] and that even fewer pertain indirectly to the sustainability of harvesting practices.[48] Despite the caveat about the scarcity of reliable data on logging practices in Indonesia, the next section explores why they are mostly bad.

WHY POOR LOGGING PRACTICES PERSIST IN INDONESIA.[49] While there is no single definition of RIL, there is general agreement about what constitutes responsible timber harvesting and improving the tools for assessing the degree to which RIL practices are used. The system developed and used by the Tropical Forestry Foundation (TFF) allows for a quantitative assessment of RIL practices, but is focused more on process (e.g., the quality of management plans) than on outcomes. In contrast, the RIL-C monitoring protocol[50] directly measures carbon emissions outcomes from tree felling, log removal, and hauling operations. The RIL-C protocol, which was approved by the Verified Carbon Standard (VCS)[51] for use in the Indonesian provinces of East and North Kalimantan, provides an objective evaluation of the success of the application of RIL techniques, at least those that influence carbon emissions. This protocol represents a rigorous yet easy-to-apply and hard-to-falsify RIL evaluation procedure. The challenge is to get it used. This

[43] Soedomo (2017); Hermudananto *et al.* (2018).
[44] Romero and Putz (2018).
[45] Hermudananto et al. (2018).
[46] Griscom et al. (2014).
[47] Hermudananto et al. (2018).
[48] Romero and Putz (2018).
[49] Note that much of what follows in this section was included in a paper with a similar title published 18 years ago; Putz et al. (2000).
[50] Developed by Griscom et al. (2014).
[51] Rainforest Alliance, VM0035 Methodology for Imp roved Forest Management through Reduced Impact Logging (RIL-C) and VMD0047 Performance Method for Reduced Impact Logging in East and North Kalimantan (2015).

issue was discussed with officials from Indonesia's MOEF, but its uptake seems unlikely. In contrast, the RIL-C protocol is central to FSC's efforts to certify environmental services.

A forest planner tags trees at a RIL concession in East Kalimantan. PHOTO: USAID INDONESIA

Due to the limited governmental enforcement capacity of environmental regulations related to timber harvesting, any improvements in logging practices will continue to depend on the willingness of private sector forest industry owners and operators. The practices most likely to be improved are those that the relevant decisionmakers believe are in their own short-term self-interest. Insofar as these interests are financial, this means that practices that decrease harvesting costs or increase yields should be spontaneously adopted. However, the extent that future yields and profits are considered in natural forest concession management appears to be mixed and dependent on individual firms. But, overall, the focus seems to be mostly short term. Unfortunately, it is not yet clear under what conditions which practices deliver financial rewards, over what time scales, in which environmental and socio-political contexts, and to whom.

Up to the operations of the forest concession, numerous actors determine the outcomes of logging. Toward the beginning of the product chain, the planners of harvest operations influence overall costs through efficiencies and inefficiencies in the management system they propose to utilize. For example, if future crop trees (i.e., trees of commercial species that are smaller than the minimum cutting diameter) are mapped, marked, and liberated from their loads of liana vines, all the costs of these operations can be minimized by combining them with harvest tree inventories rather than sending in a different crew. Marking harvest trees for directional felling is another cost that also varies depending on when it is done and by whom. Fellers in Indonesia have a great deal of autonomy—they decide which trees to fell, in which direction they should be felled, and where the logs should be cut up for hauling away—so their understanding and acceptance of RIL is critical. Similarly, if roads are built well, and hence well drained, and surfaced properly, road corridors can be narrow and forest damage can be reduced. Drivers who operate machines that winch the logs to the staging area (called log "skidding") also influence the impacts of logging. For example, if they stay on pre-planned and marked skid trails and use their winch cables instead of driving directly to each stump, the impacts of log transport operations will be greatly diminished. The log graders or scalars who work on log landings decide what gets hauled to the log pond, and their decisions also have considerable influence on the efficiency and profitability of logging operations.

Another reason for the failure of natural forest utilization concessions (*Hak Pengusahaan Hutan*, or HPHs) to adopt RIL is that the few governmental rules related to forest management are weak and easy to disregard or circumvent. Although existing MOEF regulations (e.g., pre-logging stand mapping) fall far short of what would be considered RIL, even those rules are consistently not followed. There were hopes that international programs such as REDD+ and voluntary third-party certification would promote improved forest management, but after decades of ineffectiveness it is hard to remain hopeful about their impacts in Indonesia's remaining forests. That said, those and

other market-based incentives were unlikely to be influential so long as profits were excessive, but now that the profit margins are lower, they might yet have some of the desired impacts. Similarly, governmental efforts to capture more of the rents due from timber harvests might be translated into better forest management, but the causal chain is not direct.

In summary, it appears that RIL is still a rarity in Indonesia due to:

- Lack of monitoring and enforcement;
- Weak governance and unofficial transaction costs;
- Lack of incentives and penalties;
- Lack of appropriate equipment, especially cable yarders for steep slopes;
- Lack of professionalization of the workforce;
- Lack of both private sector and national government long-term commitment to natural forest-based industries; and
- Failure to include environmental and social externalities in forest management decision-making.

PROPOSED FINANCIAL AND ECONOMIC ANALYSES OF RIL. Given that the powerful players in Indonesia's forest industries are apparently not convinced that RIL is more profitable than conventional logging, a more thorough financial analysis of logging practices should be carried out, but with industry representatives as collaborators. This proposed research on the financial aspects of logging should also consider the issues from the perspectives of all actors along the log production chain. All the concession operations crews should be included, as well as all the actors along the market chain (processing, marketing, and distribution). For example, skidder drivers paid based on the volume of timber winched to log landings may be reluctant to stick to pre-planned skid trails and to use their winch instead of driving to each log if they are not accountable for the fuel they use. Similarly, from the perspective of timber fellers, although RIL training may reduce the risks of injury, they may be less excited to use RIL practices if wet-weather shutdowns reduce their productivity. However, decreased log breakage during felling and decreased likelihood of losing logs benefits fellers and skidder drivers, as well as forest owners and concession holders.

One possibility that should be considered is that the short-term financial profitability of RIL for logging contractors is reduced when their trained workers demand higher wages and some other benefits (e.g., insurance, safety equipment, better living conditions). Furthermore, if logging crews racing to beat inclement weather or for some other reason feel pressure to log quickly, RIL planning is beneficial only if it does not entail work slowdowns while stock maps are drawn, felling directions are determined and indicated, and skid trails are planned. Mill owners with delivery schedules to meet and mill workers to pay (whether there are logs to process or not) are likely to be concerned about any changes in logging operations that slow or interrupt log deliveries to the mill gate. But based on the many environmental benefits of RIL compared with conventional logging, including the expected increases in future timber yields when regeneration is protected from logging damage, forest concession owners, and the public have every reason to support RIL. The exception to this general conclusion might be forest concession owners with insecure tenure, or other reasons to discount the value of future harvests.[52]

[52] This includes those forest industry enterprises for which forestry profits are simply a means for extracting capital for other investments outside the forestry sector altogether.

Some of the differences between RIL and conventional logging are likely to be greater on level ground than on steep terrain, at least up to a point. When conventional selective logging is conducted on moderately level ground, skidder drivers seem prone to search for logs while creating an ever-increasing density of skid trails. In contrast, when log winching (i.e., "yarding") is conducted on steep slopes, fewer viable paths are available to even the most environmentally unconcerned skidder drivers.

Although skidder drivers in conventionally logged areas often yard logs from precipitous terrain with bulldozers, RIL guidelines disallow harvests from such slopes or require alternative timber yarding techniques. Given the steepness of slopes in many HPHs in Indonesia,[53] the soil erosion and hydrological impacts of ground-based yarding under such conditions, and the increase in harvest costs with slope angle, the issue of steep terrain logging deserves a great deal more attention. A study on the financial aspects of RIL should capture the relationship between slope angle and yarding costs.[54] It should also consider the readily available log-yarding alternative of modified excavators for long-line cable yarding, for example LogFishers. These devices, which can efficiently yard logs from 200 meters or more, do much less damage than bulldozers, which typically cut switchbacks to ascend slopes of greater than 20 percent.[55]

STRATEGIES TO PROMOTE RIL. Diminishing yields and increased harvest costs may eventually motivate RIL adoption. As long as there were rich primary forests to exploit and governmental rent-capture mechanisms were weak, profits from logging in Indonesia were high to excessive. Now that yields and profits to HPHs have diminished due to having to return to previously logged and under-stocked stands, coupled with the increasing remoteness and steepness of remaining HPHs,[56] loggers may be more willing to transition from forest exploiters to forest managers. This transition seems more likely for concessionaires with more long-term interests in the forest that might, in turn, be motivated by their vertical integration with processing facilities.

Several incentives exist to adopt RIL, as well as penalties for failure to adopt it. The various international agreements pertaining to forests, such as the Global Convention on Climate Change, might support these and other national efforts to prevent forest degradation, but this remains to be seen. While positive incentives for better forest management, such as certification and RIL-based carbon offsets,[57] still seem promising, after 25 years they have not yet had a large impact on the industry. Again, market-based incentives were unlikely to be influential so long as profits were excessive, because timber is essentially being mined from primary forests, and governments captured only a portion of the rents due. Now that costs are up and profits down, perhaps efforts should be redoubled. HPHs can also be rewarded by permission to avoid regulations, such as the "self-permitting" after PHPL certification. Furthermore, there is a longstanding and still great need to focus on eliminating disincentives in the form of unofficial transaction costs and illegal logging (which drives prices down).

Several approaches can be used to obtain the social welfare benefits of RIL. To enlist the assistance of social welfare advocates in the campaign for RIL, it should be made clear that logging is a

[53] Putz et al. (2018).
[54] It would be worthwhile to carry out a document search on this topic in Indonesia (e.g., in academic archives or even private sector studies).
[55] Abdul Rahim, Mohd Shahwahid and Zariyawati. A Comparison Analysis of Logging Cost Between Conventional and Reduce Impact Logging Practices.
[56] Putz et al. (2018).
[57] E.g., Putz and Pinard (1993).

dangerous occupation, and that, in the interest of worker safety, the need for better training in logging operations cannot be over-stressed. Even in the United States, fatalities in 2016 for logging workers occurred at a rate of 135.9 per 100,000 workers, making it the most dangerous occupation.[58]

Both workers and managers should demand more training programs, but both groups need first to be motivated to improve their methods.

THE BIG PICTURE OF THE RIL FAILURE. Nowadays, when any sort of intervention fails to cause an expected change in behavior, such as was the case with USAID/Indonesia's RIL campaign, the fault is said to lie in a theory-of-change (TOC) that was not adequately informed by a robust political-economy analysis that explicitly recognized the contextual factors, relevant actors, their histories, actions, together with the assumptions behind the implementation trajectory of the intervention and its hoped-for outcomes. Natural forest management in Indonesia certainly qualifies as a complex system in which non-linear responses and surprises are to be expected. However, the emergence of explicit development TOCs is a relatively recent phenomenon (as opposed to the narrower scopes of results frameworks and similar). During the 30-year period of the USAID/Indonesia NRM Program, the use of explicit TOCs only began to be required in the most recent terrestrial and marine procurements. No formal TOC that accounted for threats, drivers, focal interests, and interventions to address these threats was ever developed. What existed was a model based on technical assumptions and interventions, but no explicit economic component that incorporated incentives and disincentives.

RIL, SUSTAINING TIMBER YIELDS, AND THE FUTURE OF NATURAL FOREST MANAGEMENT IN INDONESIA. Regulations governing harvests of timber from natural forests in Indonesia were set by the Ministry of Forestry (MOEF since 2015). Timber exploitation is approved for concessions within the forest estate that hold licenses valid for up to 70 years, and via the preparation of a forest management plan (valid for 10 years), and detailed annual plans. In the early 1970s, the minimum cutting diameter (MCD) in production forest was set at 50 cm DBH (diameter at breast height, 1.4 m above the ground; or above buttresses) and the minimum duration of a cutting cycle (the years between selective harvests) was 35 years. These rules were based on the assumptions that, for forests with hundreds of commercial species that grow under a diversity of ecological conditions across the 17,000-island archipelago country, all commercial tree species grow at 1 cm in DBH per year, and commercial timber accumulation rates in selectively logged forests are 1 m^3/ha/year.[59] Following this logic, 30 m^3 per hectare should be available for harvest at 30-year intervals. Presumably to improve these rules, forest concessionaires are required to establish and annually monitor permanent sample plots, enter the data in computer files, and provide them to MOEF for analysis.

Despite abundant and compelling evidence that timber yields decline with each harvest if governmental harvest rules are followed,[60] in 2009, MOEF changed the regulations to allow increased harvest intensity. For production forests, the MCD was reduced from 50 cm to 40 cm, and the minimum cutting cycle duration from 35 to 30 years. For HPH that agreed to do enrichment planting along cleared lines through logged forest, the MCD was further reduced to 25 years (MOEF, 2009). This disconnect between MOEF regulations and sustaining timber yield

[58] From, Rene Garcia, "The 5 Most Dangerous Jobs in America" in SupplyChain24/7, April 2, 2018.
[59] Krisnawati and Wahjono (2010); Ruslandi et al. (2017b).
[60] Eg., Sist et al. (1998); Favrichon et al. (2001); Krisnawati and Wahjono (2010); Ruslandi et al. (2017b).

contributed to the decline in the number of forest management enterprises in Indonesia from 580 in 1992 to 265 in 2016[61] and to less than half the 1992 total (of active HPHs) in 2018. Specifically, the total number of natural forest/logging concessions in 2018 is 255 (covering 18 million hectares). However, the total number of active concessions (with approved annual work plan) is 166 (covering 13 million hectares) (Ruslandi, pers.com).

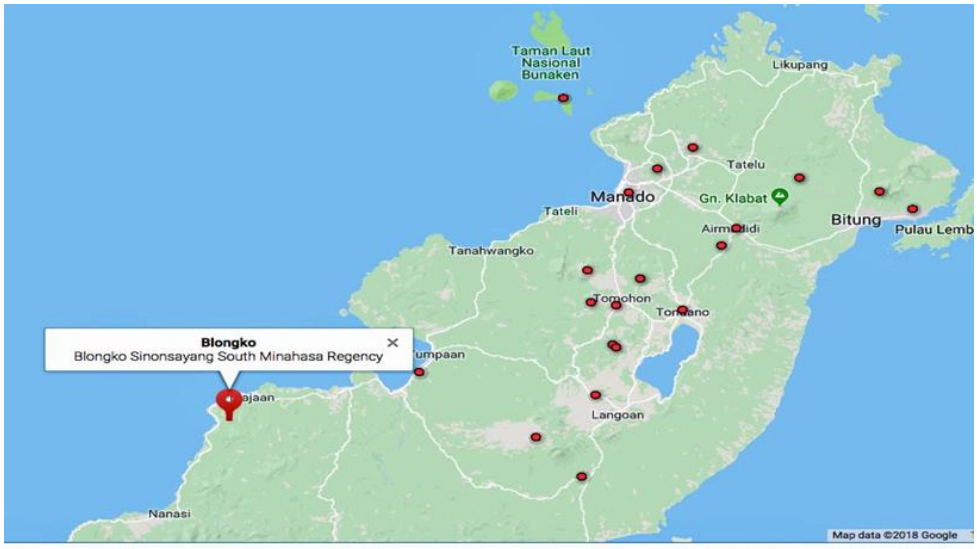
If Indonesia intends to maintain forest industries based on timber from managed natural forests, there needs to be a transition from timber mining to timber stand management. This transition starts with RIL but then continues with other silvicultural interventions designed to increase the stocking and growth of commercial timber trees. Treatments as simple and as cost-effective as cutting lianas on the trees that should provide the next crop (i.e., future crop trees) can have substantial benefits, but other silvicultural options are available.

CASE STUDY B: THREE CONTRASTING COMMUNITY-BASED MARINE NATURAL RESOURCE MANAGEMENT INTERVENTION IN THE NRM PROGRAM

USAID employs CBNRM as an important model for a more equitable and environmentally sound approach to rural economic development, not just in Indonesia but also in many other developing countries. The majority of the NRM Program's interventions have included at least some, and often many, CBNRM activities. This case study focuses on three activities in the coastal and marine sector to illustrate the roles of community-level governance, the impact of the NRM interventions, and the difficulties of achieving real CBNRM.

BLONGKO, COMMUNITY MARINE PROTECTED AREA, NORTH SULAWESI. The Coastal Resources Management Projects (CRMPs) I and II fully embraced the concept of CBNRM as an approach to community-level marine conservation and improved livelihoods. One of the better-known CRMP sites was a group of villages in the Bay of Blongko in North Sulawesi (see map), where CRMP supported the creation, in the early 2000s, of a community marine sanctuary supported by local management and regulations. At the time, no national marine affairs and fisheries ministry existed in Indonesia. Neither did formal, regulated marine protected areas (MPAs).

Map of Blongko Community Marine Protected Area and Bunaken Marine National Park



[61] Soedomo (2017).

COMMUNITY-BASED MPA APPROACH AND SOCIALIZATION. CRMP's objective in facilitating the creation of the Blongko community MPA was sustainable fisheries. In other areas of North Sulawesi, CRMP had focused on the use of stewardship agreements for community MPAs. In Blongko, the effort was aimed at creation of a community-based set of regulations on protecting and sustainably using coastal fisheries (i.e., a community-based MPA).

CRMP's approach included five stages:

1. Public education for community members about the concept of an MPA for fisheries sustainability;
2. Public dialogue and capacity-building to develop leaders and their management capabilities;
3. Community consultation and village ordinance formulation;
4. Village ordinance approval, including involvement of local government agencies; and
5. Implementation of the community-based MPA.

A core part of the CRMP I approach was to ensure the active involvement of "community-based extension officers" who would manage the whole process and coordinate technical assistance and the participation of trainers. The full-time assignment of the field extension officer was estimated at one to three years, to be followed by part-time visits for at least one year after the end of the full-time period. To facilitate this transition, field assistants (members of each community) were appointed and worked (and trained) alongside CRMP extension staff. CRMP I took the lead in coordinating oversight and support from the provincial development planning agency (Bappeda) and the participation of a local university.

The idea of making 6 hectares of the coast containing a fringing coral reef and mangrove forest into a marine sanctuary came about after a representative of Blongko Village visited the community-organized marine sanctuary at Apo Island in the Philippines. This individual persuaded the Blongko communities to try to replicate the Philippines' experience.

PREPARATORY STEPS IN COMMUNITY-BASED MPA DEVELOPMENT. Training was conducted on coral reef mapping and monitoring. This information was then incorporated into the marine sanctuary planning process. Realizing the potential benefits of increased fish production from a sanctuary, and the value of the local fishery to the communities in supporting the livelihoods of future generations, communities engaged in efforts with CRMP I staff to identify a proper site, and to develop a local set of regulations to manage the proposed MPA.

Communities could prepare two to three-page proposals to take "early action" to address simple coastal management problems that did not require large sums of money or a long period to complete. The regulations contain sections detailing the following:

- The legal basis that supports the establishment of a community-based marine sanctuary and the goals of a marine sanctuary;
- Location of the marine sanctuary;

- Responsibilities of the management group and the larger community in sanctuary management;
- Allowable activities in the marine sanctuary and buffer zone;
- Prohibited activities in the marine sanctuary and buffer zone;
- Penalties for violations; and
- A map of the marine sanctuary location.

COMMUNITY GOVERNANCE ISSUES IN BLONGKO MPA. A few years after the community MPA was set up, problems began to arise. Because of the CRMP I extension staff's insufficient understanding of the local social hierarchies, the village elite essentially captured the community MPA and its fisheries for itself. This led increasingly to the exclusion of much of the rest of the village population from the fisheries managed under the MPA. Most villagers and many community marine sanctuary board members felt they were unrepresented in decision-making, excluded from the monitoring process of fishery extraction and rights allocation, and omitted from participating in local economic development programs, such as CRMP's ecotourism initiatives and the joint effort to market and diversify Blongko's local fishery products.

Extensive interviews with residents brought up numerous issues. Perceived problems included local misuse of community regulations to abuse power, not only enabling the capture of the MPA by the village elite but also by commercial fishers working with the village marine sanctuary leadership. An overemphasis on regulatory measures, especially after the end of CRMP's involvement in 2004, also caused increased alienation, especially members of the fishing population who felt excluded from the MPA. These problems also arose from the top-down nature of the project structure in which the village leader and village council tended to act as a filter preventing broader village participation in the management of the MPA.[62]

RESOLUTION TO MPA GOVERNANCE ISSUES. At the same time, a local young Christian bible study group had formed. It gradually gained increasing respect in the communities. As more people joined, the objective of the group also expanded from scholarly Bible studies to that of protecting marginalized community members and promoting democracy, participation, and social inclusion within the village. Overtime, a series of discussions were held about what kind of development would best serve the common good. Collective action emerged about the need to protect Blongko's marine and fishery resources. These discussions mobilized enough followers to create a reform-minded marine sanctuary protection group that eventually ended elite capture of the sanctuary. The new, more broad-based MPA protection group has since stabilized protection of the sanctuary. The communities are now also trying to develop the MPA as a dive tourism destination and are interested in developing ecotourism.

By failing to adequately account for the existing social structure and conflicts, the CRMP project may have relied too heavily on cash and non-conservation development aid as an entry point into the villages, which proved to be an unsustainable approach. Their focus on "key" stakeholders as opposed to all relevant stakeholders, insufficient attention to the wider legal framework that provides the context for village regulations, and failure to adequately involve local government were also problems. Finally, the community-based extension workers did not appear to have the capacity to adequately monitor project implementation. Small community reserves were a good

[62] Brian Crawford et al., Community-Based Coastal Resources Management in Indonesia: Examples and Initial Lessons from North Sulawesi (1998).

start but required additional strategies to address the larger scale of fishery depletion and reef degradation, especially the problem of large-scale commercial fishers intruding into the MPA.[63]

Despite these weaknesses, the CRMP model of community-based coastal management had a positive regional impact, as the World Bank and the Asian Development Bank adopted the model as well. The key elements are participatory management by communities, stewardship agreements, and the introduction of specific tools to assist in implementation. When done well, successful outcomes include community awareness of the need to manage resources, and rules to stop fishing within the core part of the reserve, as well as a willingness to participate in resource monitoring.

BUNAKEN MARINE NATIONAL PARK (MNP), NORTH SULAWESI. Unlike Blongko, Bunaken MNP was already a protected area prior to USAID/Indonesia's interventions. In 1980, the coastal area near Bunaken was declared as the Manado Marine Park Tourism Destination under a decree issued by the North Sulawesi Governor. In 1986, the Forestry Department changed the status of this area into two marine nature reserves. Bunaken's status was changed again into that of a national park in 1991. Bunaken covers a total area of 890km², 97 percent of which is marine habitat. The remaining 3 percent of the park is terrestrial, including five islands. The southern area of the park includes part of the Tanjung Kelapa coast, which contains important seagrass beds, among other habitats. Bunaken has a very high diversity of both marine floral and faunal species.

The park was established with three explicit objectives:

1. Conservation of marine biodiversity;
2. Supporting the livelihoods of about 30,000 villagers inside and on the boundaries of the park; and
3. Development of marine ecotourism within the park.

As with other national parks at that time, management of the park was based in the Department of Forestry in Jakarta, with the local park office having little independent authority and few resources. Coordination with relevant local government agencies and with local stakeholders also was very much lacking.[64]

INTERVENTIONS IN PARK MANAGEMENT AND COMMUNITY GOVERNANCE. Because the park was created without any local community consultation, the lack of "bottom-up" constituency building has undermined park management ever since. Moreover, resentment, especially from the fishing communities, was exacerbated due to understaffing and under-resourcing of the park service unit, which simply adopted a limited approach to policing Bunaken MNP, especially of illegal fishing activities, and to community relations. First, NRMP I and later NRMP II worked with community and park staff to create a real community-based approach to the park's management. The key elements of the approach, formalized in 2001, were:

[63] Meilasari-Sugiana, A. (2016).
[64] M. Arief Toengkagie, Charting a New Course for Co-Management of Bunaken National Park (2003).

1. A participatory zonation revision process;
2. Creation of a multi-stakeholder advisory board;
3. Implementation of an innovative entrance fee system for sustainable conservation financing;
4. Inclusion of local communities and the private sector in management; and
5. A joint ranger-villager patrol system.

An intensive communications and socialization/education process—with community members, dive resort owners, and local government all participating—preceded the creation of a multi-stakeholder park advisory council. In the previous 10 years of the park's existence, no park fees had been collected at all, which was a problem for effective management. The new fees ($15 equivalent/per person in 2003) were used to invest in best practices, such as buying anchor buoys, the cessation of destructive fishing methods, regular joint park service and community patrols, and community and economic development activities. By 2002, a good working relationship among stakeholders had developed, and tourist revenues were being shared with park communities to help with education, alternative livelihoods, and park maintenance. The formation of the North Sulawesi Watersports Association (NSWA) in 1997 greatly assisted the new management regime in getting the private sector actively involved in the park's co-management.

ISSUES WITH PARK GOVERNANCE. However, even before the end of NRMP III in 2004, this successful co-management regime started to experience problems, especially with the tourism activities.[65] Because of its well-known biological richness, Bunaken was already popular and the rapidly growing number of dive and snorkeling tourists across a relatively small area was causing growing degradation of reef quality. This was primarily due to the poor guidance and management of tourists by the dive resort operators. After the end of NRMP III, the multi-stakeholder management approach gradually ceased functioning. As a result, each of the participant stakeholder groups began pursuing their own interests at the expense of the park's fragile marine ecology.

CAUSES AND IMPACTS OF BUNAKEN MNP DEGRADATION. The degradation of Bunaken MNP has occurred for two reasons. First, the number of tourists allowed onto the reefs has exploded in recent years. The maximum annual carrying capacity of snorkel and dive tourism for Bunaken was originally set at 8,000-9,000 people. But this number gradually increased to 10,000-12,000 by 2010, and is now 15,000-20,000, far exceeding the park's carrying capacity. This level of dive and snorkel tourism greatly exacerbated the return of bad practices in dive tourism management, for example not using the anchor buoys and the overcrowding of individual dive sites.

Second, enforcement of fishing regulations has declined over time, and a return to overfishing and destructive fishing practices has also occurred.[66] Previous to the NRMP II intervention to change the governance regime of the national park and to support a community-based management strategy, the use of poison and blast fishery techniques was common. This had severe impacts on corals, and benthic and pelagic fish species. A survey of fishing communities in 2017[67] indicated that fishers were aware of fishing regulations, no-take zones, and other management regulations, and a plurality of the respondents agreed with them. Nevertheless, most respondents said they frequently ignored the regulations. Almost all respondents stated that the problem was a lack of enforcement. This, in turn, was due to a lack of infrastructure, equipment, and facilities to enforce

[65] de Vantier and Turak (2004).
[66] Flora P. Kalalo (2017).
[67] Flora P. Kalalo (2017), 1417.

the rules of no-catch areas. This included a lack of patrol boats, fuel, detention facilities, and other items.

This summary of Bunaken MNP's brief co-management history suggests several failures among the community of stakeholders in the national park. Initially, the national government's decision to impose a top-down national park regime on the local communities in 1991, while typical of New Order governance, robbed the park of its most important constituents, the local communities. While the NRMP II intervention from 1997 to 2004 was a governance success and a demonstration of the potential for participatory CBNRM, the Bunaken National Park Office was unable to sustain this form of co-management governance on its own. While the North Sulawesi Watersports Association (NSWA) was initially enthusiastic in support of the multi-stakeholder management approach, clearly it has failed to enforce best dive tourism management practices among its members. The combination of a lack of sustained behavior change and the decline of park champions in the community, and in the local government, has exacerbated a lack of cooperation from the park's communities. This has resulted in ineffective management, a lack of sustained co-management interventions, and inadequate ecological monitoring and stakeholder self-policing.

RAJA AMPAT MARINE PROTECTED AREA (MPA) NETWORK, WEST PAPUA. This MPA is a network of seven community-based MPAs in Raja Ampat District, West Papua. Raja Ampat, in turn, is part of a larger network of 12 MPAs comprising the Bird's Head Seascape of West Papua. Raja Ampat is a government-managed MPA network with extensive community participation—not a national park like Bunaken. Conservation International (CI) and The Nature Conservancy (TNC) have worked in Raja Ampat since 2001 and have managed the MPA in collaboration with the local government using several sources of donor funding, including from USAID under the Marine Protected Areas Governance (MPAG) project. The World Bank-funded COREMAP II project also worked in this area between 2003 and 2010. CI and TNC still conduct research and provide technical guidance.

The major threats to Raja Ampat arose mostly from external actors rather than from the local population. The marine environment is very rich in biodiversity of both flora and fauna. The threats to this environment were familiar:

- Use of explosives and potassium in fishing;
- Overfishing by locals and migrants, including IUUF commercial fishing; and
- Sediment and other pollution from eroded and deforested slopes along the coast.

In addition to setting up the regional MPA, the district government of Raja Ampat has been providing training and guidance on improved fishing practices to local fisherfolk. To assist with the management of the MPA, the district government set up a technical management unit under a local government public service agency (*Badan Layanan Umum Daerah*, or BLUD) to enable the creation of a more sustainable co-management system. The BLUD charges a general entrance fee on tourists regardless of the kinds of activities they will be pursuing in their jurisdiction. In addition, the BLUD can receive funding from the local government and other public and private sources, such as the Blue Abadi Trust Fund. MPAG also provided a great deal of training on MPA management, finances, and tourism development, building on traditional resource management approaches.

Because of the longstanding assertion of indigenous resource rights in this region and *adat*-based fisheries management, locally known as *sasi laut*, CI, TNC, and the local government have been able

to build on this solid foundation. Regular community consultation also has been an essential part of MPA management. *Sasi*, which is the Papuan term for customary law, has both terrestrial (*darat*) and marine (*laut*) rules, but the common approach is the closure of part of the resource (land or sea) for some time to allow the resource to recover. In the case of *sasi laut*, it has been demonstrated that the process results in greater productivity from fisheries and greater cash income as well.[68] *Sasi laut* rules may include the types of marine life or fish that may be caught, the type of fishing gear used for harvest, the harvesting time of year, and the number of fish or other marine resources that can be harvested. The impact of the MPA creation and introduction of modern conservation management has changed *sasi laut* somewhat. The size of the closed areas and areas subject to *sas*i are now much larger than was the traditional practice. In addition, more scientific practices, including better understanding of catch size for various species and increasing the number of species protected, have altered the traditional practices. *Sasi laut* now needs to be formalized into a form of management institution due to the rapid influx of non-indigenous investments, populations and the subsequent social change. On the other hand, *sasi laut* has reduced overall management costs because the whole community is invested in monitoring and enforcement.

Tourism has become a large and fast-growing industry in Raja Ampat, mainly because of its rich marine biodiversity that includes the presence of charismatic marine megafauna and beautiful islands. Aware of the problems with mass tourism that have plagued sites such as the Bunaken MNP, the Raja Ampat district government has focused on ecotourism-oriented investments and it has strictly limited the number of live-aboard dive boats and dive tourists at individual sites. The other measure to limit mass tourism has been the imposition of a $100/person "environmental services" fee, which is used to help defray the costs of MPA management and to fund a variety of community development investments and services, including a nutrition program for mothers and children.

Raja Ampat has also attracted several private foundations to support and expand efforts on culturally appropriate improved livelihoods. One example is the Walton Family Foundation's support for the development of more than 50 family-owned homestays for tourists. Other foundations, such as the Packard Foundation, have focused on sustainable fisheries management.

Raja Ampat is an example of an MPA system that is grounded in a solid cultural and customary rights tradition, and that has successfully engaged local institutions and other stakeholders. Its biggest challenges will be to retain the integrity of the modernized *sasi laut* fisheries management system and to continue to manage tourism development so that it does not threaten either the marine environment or the unique culture and traditions of the Papuan population.

[68] Boli, Paulus, et al. (2014), 132.

This case study demonstrates the serious challenges and complexity of coastal marine conservation and protection, including:

- The need to build upon existing social mores and customary practices where these can be improved through collaborative exchange of knowledge and accessible technology;
- Committing enough time and expertise to an intervention to ensure that results will be sustained; and
- Leveraging community, NGO, and private sector resources to build a broad range of stakeholders who will benefit from coastal and marine protection systems.

CASE STUDY C: RECOGNITION OF INDIGENOUS FOREST PEOPLE'S TRADITIONAL LAND TENURE RIGHTS

Historically, USAID has had a longstanding, worldwide interest in land tenure rights as part of a broader interest in democratic governance with wide-ranging public participation, the formalization of property rights, and sustainable development. However, the issue of resource use rights of indigenous forest peoples has long been a particularly sensitive political issue in many countries, including Indonesia.

Throughout the New Order period (1966-1998), the Government of Indonesia (GOI) sought to ignore or suppress the assertion of customary resource use rights (broadly called *adat*) of indigenous forest peoples, especially in land classified as production or protected forests. As a result, periodic conflicts occurred, especially in forests where production concessions had been granted by the national government with little or no consultation with local governments or communities. Conflicts also arose between indigenous forest communities and transmigration settlements in Kalimantan, Sumatra, and Irian Jaya (now Papua and West Papua). These settlements usually included "nucleus estates" of oil palm or rubber, as well as rice fields and other forest areas cleared for food crops, which caused considerable primary forest destruction. Sometimes conflicts also occurred in forested areas with mining concessions due to the displacement of forest peoples and/or the pollution of their lands from mine waste.

In 1993, USAID's Natural Resource Management Project (NRMP I) began working with forest concessionaires around the Bukit Baka-Bukit Raya National Park in Central/West Kalimantan to introduce reduced impact logging techniques and other more environmentally friendly practices.

At the same time, the project started to collect information about the local indigenous people, the Dayaks. This included a body of knowledge on the social, economic, political, and cultural mores of these communities. In addition, a compendium of maps was developed that sketched traditional patterns of community use of natural resources. A Village Advisory Council was formed to mobilize the interests of local villagers in managing and planning the development of the park's resources, and the project came up with the new concept of a "traditional forest area." The council was envisioned as a partner in forest management practices, such as participation in community infrastructure development and in community-based fire control training provided by the U.S. Forest Service (USFS). However, the national government refused to recognize indigenous forest tenure rights, except for a limited community forestry right allowing villagers to harvest some non-timber forest products. Local indigenous communities were not allowed to harvest timber for sale, and even the use rights exception was allowed in only a few concession areas.

During the first two years of the follow-on NRMP II, the focus of community use rights was primarily limited to protected area management and, in the case of the Coastal Resources

Management Program (CRMP), marine stewardship agreements. During this time (1995-2001), Kemala, an NRMP II partner project, was actively engaged in community mapping of traditional forest areas, especially in cooperation with indigenous communities. Kemala was a unique project. It was an initiative of the USAID Washington-based Biodiversity Support Program. A significant part of Kemala's scope was providing grants, the design of which was guided by the grantees. Community mapping was a way of both documenting *adat* lands *vis-à-vis* those of concessionaires or conservation areas and of generating broader participation in village discussions about land use (between genders and generations). Kemala was also documenting and seeking recognition of indigenous forest people's cultures and value systems. Meanwhile, starting in the mid-1990s, in West and Central Kalimantan, non-governmental organizations (NGOs) such as Pancur Kasih were working with forest communities to develop "conservation agreements" based on sustainable forest land uses and governed by *adat* rules. More local NGOs started working with indigenous communities to revitalize *adat*-based resource management practices while others worked on policy advocacy and education.

With the end of the New Order and the advent of decentralization and democratization in 1999, the long-suppressed demands for recognition of *adat* rights became stronger. USAID, through NRMP II and the Ford Foundation, provided the main funding and technical assistance for the organization of a Communication Forum on Community Forestry (FKKM). NRMP II also supported the establishment of the Natural Resources Management Network. The forum was intended to work on community forestry policy and help draft legislation for the Department of Forestry and Parliament. Meanwhile, the network was intended to help mobilize the now large NGO community around policy advocacy and public awareness on natural resource rights generally, including recognition of *adat* rights. Both NRMPs II and III supported various provincial-level NGOs advocating for legal reforms of forest tenure systems with district legislatures and government agencies. Both NRMPs II and III were also active in advocating for forest rights in the districts in East Kalimantan Province. These efforts demonstrated that much of the forestland conversion to plantation (especially pulp and oil palm) displaced many forest people, significantly and negatively impacted their livelihoods, and imposed resource management costs on local governments.[69]

The NRMP II partners' (and the Ford Foundation's) support for national NGO activities were complemented, at the provincial level, by the formation of indigenous NGO alliances (for example, the Alliance of *Adat* Peoples in West Kalimantan and The Alliance of *Adat* Peoples). This became the inspiration for NGOs to assist in the formation of an Indonesia-wide alliance of indigenous peoples. In addition to support from NRMP II and Kemala, support also came from the International Center for Research on Agroforestry (ICRAF), and the Center for International Forestry Research (CIFOR). The NRMP II's large team of talented Indonesian resource management experts and consultants (including those provided by Kemala and its NGO network) provided technical assistance, mentoring, meeting and conference support, messaging, and other types of communication support.[70]

These efforts culminated in a series of "socialization" meetings by many of these groups during 1999 that led to an agreed policy and legislative advocacy agenda and the formation of the *Adat* People's Alliance of Nusantara [Indonesia] or AMAN. After AMAN's founding Congress, Ministry of Agriculture Decree No. 5/1999 outlined ways in which a local *adat* community might register its

[69] From NRM III, Lessons Learned: Natural Resources Management Program, 24-26.
[70] Drawn from Ibid., 25-26, and Alcorn and Royo (2001).

land claims to the government and a few places did receive limited rights recognition. Law No. 22/1999 on Local Government was the first legal recognition of the *adat* structures and territorial rights of indigenous peoples.[71]

AMAN has now established 114 regional chapters in 33 provinces and comprises 2,272 indigenous communities with an estimated population of over 15 million people. In 2007, AMAN consolidated its internal organization with the creation of a secretary-general and governing council. However, the GOI continued to resist recognition of indigenous forest peoples' rights. For example, the 2010 Norway and GOI $1 billion climate change agreement was supposed to include this recognition, but the provision was dropped during negotiations. USAID has continued to support indigenous forest peoples' development as part of its broader support for community participation in forestlands management, primarily through Indonesia Forestry and Climate Support (IFACS) and the LESTARI projects. Meanwhile, AMAN continued, with the assistance of the Indonesian legal community, to press its case for recognition of *adat* rights. This finally came in the form of a Constitutional Court decision in 2012, stating that the Ministry of Forestry had to recognize such rights in the award of forest concessions and to compensate *adat* communities for any losses to their existing customary forest areas.

This case study not only provides an example of USAID/Indonesia NRM Program's longstanding policy and legal efforts in support of indigenous forest peoples' resource rights, but also represents USAID's:

- "Convening capacity" and facilitating forums to help resolve NRM conflicts, especially between government and local communities;
- Support for the introduction of good governance norms with respect to NRM rights, especially at the regional level; and
- Assistance for building NGO/civil society capability in CBNRM.

CASE STUDY D: INTEGRATED LANDSCAPE GOVERNANCE AND COMMUNITY NETWORKS IN THE SUNGAI WAIN PROTETION FOREST

This case study examines the roles of different types of communities in integrated landscape governance of the Sungai Wain Protection Forest (SWPF),[72] located in the southeastern part of East Kalimantan Province. It is the watershed for the province's largest city, Balikpapan. The watershed area is around 10,000 hectares and consists of the catchments of the Wain and Bugis rivers. It contains ecosystems that are representative of the province, including lowland, humid Dipterocarp forests, hilly, dry Dipterocarp forests, open swamp, freshwater swamp forest, and riparian forest. The watershed also contains almost all the typical Bornean lowland rainforest species, including many of high conservation interest. These include sun bears, all five of Borneo's cat species, all eight hornbill species, nine primate species, including a small population of orangutans reintroduced in the 1990s, and other bird endemics such as the Bornean bristlehead.

A petroleum refinery is sited on the coast near Balikpapan, which is a major employer. In 1947, a reservoir and pumping station were built by BMP (a Dutch colonial company), which were later assumed by Royal Dutch Shell. In 1969, the refinery was taken over by Permina (Pertamina State

[71] Alcorn and Royo (2001).
[72] The Sungai Wain case study draws on several sources including NRM III Lessons Learned (2004), Usher (2001), and van den Dries (2013).

Oil Co. since 1972), which has operated the reservoir and pumping station up until today. The water production of the Wain River watershed is essential to the operation of the refinery and directly supplies 26 percent of the water requirements of Balikpapan.

PROTECTION STATUS OF SUNGAI WAIN FOREST. Because of the importance of the watershed, it has been under some form of protection since 1934 when a Royal Decree of the Kutai Sultan (No.48/23-ZB-1934) designated it as a "closed forest." In 1983, a decree of the Minister of Agriculture (24/Kpts/Um/I/1983, Wain River) gave it watershed designation with management authority residing at the provincial level under a regional forestry office (*kanwil*). As was the case elsewhere in Indonesia, this proved to be completely ineffective and the watershed was subjected to poaching, illegal logging, and fires.

In early 1998, catastrophic forest fires swept through East Kalimantan, made worse by a long El Niño drought and previous extensive legal and illegal logging. Researchers from Tropenbos, an international conservation research organization working in the Sungai Wain watershed, tried to protect its forests from the fires. Members of nearby forest communities were mobilized to create firebreaks and other measures to prevent the fires from reaching the SWPF, efforts that were largely successful.

Meanwhile, with Government Regulation No. 62/1998, the management of protection forests was placed under the authority of a municipality or district government (which have the same legal status). Government Regulation No. 25/2000 later clarified that the authority of the municipality or district government was in addition to the authority of national and provincial agencies.

NRMP II'S INTERVENTION DESIGN IN THE SUNGAI WAIN FOREST. The Natural Resource Management Project (NRMP) II (1997-2002) had four field offices (West Kalimantan, East Kalimantan, North Sulawesi, and Irian Jaya [Papua]) in addition to its main office in Jakarta. The field offices worked closely with provincial and district governments, NGOs, local universities, and communities. Forestry and protected area management were the two main programmatic priorities for the East Kalimantan office. In the wake of the successful effort to save the SWPF from forest fires in 1998 and working closely with a network of local environmental NGOs called *Konsorsium*, and a researcher from Tropenbos, the NRMP II team supported a public awareness and education campaign on the importance of protecting the SWPF. The campaign emphasized the importance and value of the SWPF, including:

- The importance of a stable supply of water for Balikpapan and Pertamina;
- The importance of the SWPF to the people of Balikpapan for income, employment, and recreation;
- The fact that the SWFP is the only lowland hardwood forest of special value in Kalimantan that is near both Balikpapan and Samarinda (the provincial capital); and
- That SWFP is an extremely rich living laboratory that provides opportunities for researchers to investigate a very important and valuable network of interrelated ecosystems and to receive field training.

Sungai Wain Watershed Public Forum. PHOTO: USAID INDONESIA

The principal threats were also clear: logging, illegal cutting/harvesting, road building, and forest fires.

Three management alternatives were discussed with the municipal government: (i) maintaining the current de facto management by Pertamina, which operated the water pumping station; (ii) having the municipal government manage the watershed; or (iii) developing a multi-stakeholder management body with specific authority and jurisdiction to manage the SWPF under the overall jurisdiction of the municipality. The first two alternatives were regarded as inadequate in achieving maximum protection and so the third alternative was chosen.

SETTING UP THE MULTI-STAKEHOLDER MANAGEMENT SYSTEM FOR THE SWPF. NRMP II and the *Konsorsium* team persuaded the municipality, with the critically important support of the mayor (who was a champion of the process), to take the lead in the multi-stakeholder management effort. First, the municipality declared that the entirety of the SWPF was a part of the municipal boundaries, which formalized the 1998 protection forest management decision. Second, two bodies were created: the Sungai Wain Protection Forest Management Board (BP-HLSW), and the Sungai Wain Protection Forest Implementation Unit (UP-HLSW). The first is the multi-stakeholder management body of Sungai Wain, which has been officially active since 2004. At the beginning, it included stakeholders from the local government, NGOs, local communities, companies such as Pertamina, and research institutions. The second body is the operational arm of the SWPF. It included the Balikpapan development planning agency (Bappeda) and the local environmental management office.

The UP-HLSW has played a critical role not only in patrolling the forest and enforcing its protection, but also in working with communities on forest governance. While some members of the forest communities practice shifting cultivation in the forest (*ladang*), many people working at UP-HLSW are members of local communities or partners with UP-HLSW in activities that it organizes for community social and economic development, and to support the customary rights of communities. The UP-HLSW also cooperates with other entities on developing ecotourism, forest research, and public education related to the values of the forest. The role of the Balikpapan mayor in championing the SWPF was critical to its early success. The mayor continued the public awareness campaign and branded Balikpapan as a "green city." The city adopted the sun bear as its official logo, and later established a botanical garden (*kebon raya*) with species representing flora from all over the island of Borneo.

Since the two operational units started working (the implementation unit and the local environment office) the active membership of the BP-HLSW has gradually declined over time to only a relatively small number of active individuals. The Balikpapan Assembly agreed to fully fund only the first year of the BP-HLSW and UP-HLSW. However, it became clear that alternative, independent funding sources could not be found to take over funding of the budget, so the Assembly continued to fully fund the SWPF budget during 2002-2015.

ISSUES FACING THE MANAGEMENT OF THE SWPF. While municipal management of the SWPF has been largely successful, some conflicts related to the SWPF have occurred. One of the major problems comes from large-scale economic development schemes championed by the provincial and national governments. The first of these is the Trans-Kalimantan Highway Southern

Route, which skirts the southern edge of the SWPF, while the second is an extension of an existing industrial estate that would destroy part of a mangrove forest and encroach into the SWPF.

While the municipality has tried to resist both projects as planned, it has little actual power to effectively stop them. In addition to these two threats, there have been periodic internal conflicts within the UP-HLSW and the local environment office about how to handle the illegal logging that still takes place, albeit on a small scale, in areas of the SWPF that are close to its boundaries and hence more easily accessible. In general, however, the collaborative management approach of the UP-HLSW has been relatively successful.

Unfortunately for the city, changes resulting from Law No. 23/2014, which pulled back forestry authorities to the provincial level across the country, also changed the management status of the SWPF and other forests. This has meant that the management of the SWPF shifted back to the pre-2000 situation, with a consequent void of management funding, since the provincial government forestry agency regards the SWPF as too small to be worth funding. However, in 2015, the Pro Natura Foundation signed an umbrella memorandum of understanding (MoU) with the Balikpapan municipal government and submitted a detailed work agreement to the local environmental office to continue protection of the SWPF. Pro Natura is a small foundation based in Balikpapan that operates the Environmental Education Tourism Zone (KWPLH) in the SWPF. The foundation is a spinoff of Tropenbos. The MoU authorized Pro Natura to organize and fund the day-to-day management of the SWPF during 2016. To avoid a potential management collapse, the Pro Natura Foundation has stated its intention to continue to play a key role in protection of the forest for the following three years (2017-2019). At the same time, it will search for long-term options for a new, more sustainable management scheme, and ways to secure a revenue stream to ensure the continued survival of Balikpapan's valuable natural asset.

LESSONS FROM THE SWPF CASE STUDY. The SWPF is an example of stakeholder communities collaborating on integrated forest governance. Several types of "community" can be identified in this governance effort:

1. The Balikpapan municipality and its government, representing the population of the city and its interests, especially clean water;
2. Forest communities with a direct stake in the continued functioning of the forest, and all the ecosystem goods and services they receive from the forest; and
3. The international and domestic conservation research community, which includes not only Tropenbos but also local environmental NGOs and academic researchers.

Applying the concept of a multi-stakeholder management body depended upon the willingness of each of these "communities" to co-manage the SWPF as a valuable natural asset, and to integrate their interests into the maintenance of the SWPF's ecosystem goods and services. These include clean water for the municipality and local industries, especially the Pertamina refinery, as well as non-timber forest products and services of special importance to forest communities. The arrangement also allows for ecological research and conservation efforts of the domestic and international researchers in the forest. All three of these "communities" collaborated on protection of the forest, including patrols, the management of ecotourism, environmental education, and forest fire prevention.

In addition, several special factors contributed to success in this case, including the following:

- The relatively small size of the watershed, making the landscape a more manageable size for effective protection;
- The decision to place the protection forest entirely within the jurisdiction of the city municipality simplified management lines and may have prevented inter-jurisdictional conflicts (at least until 2015);
- The presence of Tropenbos and its long-term investment in the ecology and protection of the SWPF was a critical factor;
- The continued support of successive mayors and the Balikpapan Assembly provided needed political backing to institutionalize the protection of the SWPF; and
- The funding from NRMP II, and its technical assistance and training roles in the important early stages of the collaborative management of the SWPF, were both catalyzing impacts and critical to the initiative's early success.

CASE STUDY E: INSTITUTIONAL DEVELOPMENT OF THE MINISTRY OF MARINE AFFAIRS AND FISHERIES

Until 1999, Indonesia had no marine affairs and fisheries national policy nor was it an institutional priority, despite the nation having the second-longest coastline in the world at 99,093 km and boasting 6,315,222 km^2 of marine area within its exclusive economic zone—three times that of its land area.[73] Indonesia's seas are a global center of marine biodiversity and 2.27 percent (at current prices) of Indonesia's GDP came from the fisheries sector in 2016.[74] Despite this importance, in the 1990s fisheries were managed by the Department of Agriculture, and marine biodiversity conservation was rarely addressed at all except by a few NGOs. USAID/Indonesia designed the first foreign assistance marine program in Indonesia, with the Coastal Resources Management Program (CRMP) I, implemented from 1996 to 2003. USAID's follow-on CRMP II was implemented from 2003 to 2005. The World Bank's COREMAP (Phase I,1998-2004, and Phase II, 2004-2011) was a later complementary institutional development effort.

COASTAL RESOURCES MANAGEMENT PROJECT (CRMP) AND NATURAL RESOURCE MANAGEMENT PROJECTS (NRMP) II AND III SUPPORT FOR MARINE AFFAIRS. During the last years of the New Order era, marine biodiversity and coastal fisheries management were addressed mainly in marine national parks (MNPs), for example, Bunaken (NRMPs II and III), Wakatobi MNPs (World Wildlife Fund, or WWF), and The Nature Conservancy (TNC) and the Komodo National Park. CRMP worked on community marine protected areas (MPAs) in North Sulawesi and supported coastal spatial planning in Lampung and West Papua, and coastal watershed protection in East Kalimantan.

In 1999, with the advent of democracy and decentralization, the GOI realized that it needed a new ministry to address the lack of policy and regulation of marine affairs, small island development, and fisheries. USAID and the World Bank, as well as some international NGOs, were closely involved in the establishment of the Ministry of Marine Affairs and Fisheries (MMAF), including enabling legislation, capacity-building, and program development for the new ministry. The role of USAID's CRMP I and II in this early establishment was critical. The Sea Grants Program of the U.S. National

[73] Statistic on Marine and Coastal Resource, BPS (2017).
[74] Ibid.

Oceanographic and Atmospheric Administration (NOAA) also assisted in the MMAF's institutional development. CRMP II headed the Secretariat for the Indonesian Sea Partnership Program (SPP, or *Mitra Bahari*), a university-based, decentralized program launched in 2002 to help overcome the limited capacity of local governments by bringing Indonesian universities into coastal management activities. SPP was explicitly based on NOAA's U.S. university-based Sea Grants Program. NOAA supported the MMAF in establishing the SPP with USAID funding. The SPP model was critical to the structure of Law No. 27/2007 on Coastal Zone and Small Island Management, and was officially recognized as a core part of the MMAF. By 2010, SPP was established and active in all of Indonesia's provinces. From the start of the program to the present, Indonesian and U.S. universities have continued to maintain active research and exchange programs.

CRMP II also continued to work, within the limits of its resources, on developing MPAs, and on support for nature-based tourism in coastal areas and improved coastal livelihoods. This integrated approach involving community participation and coastal resource management, provided useful learning for the Bogor Agricultural Institute (IPB), which contributed some of the leadership and staffing for the MMAF. But a country as large and as complex as Indonesia, with so many islands and coasts, needed a much larger and longer-term effort to have a significant impact. Nonetheless, USAID/Indonesia's CRMP project was an important pioneering effort addressing coastal areas management.

USAID/INDONESIA'S RETURN TO MARINE PROGRAMMING. In 2010, USAID/Indonesia returned to investing in marine affairs and fisheries as a part of its NRM strategy. It created a marine program consisting of the Indonesia Marine and Climate Support (IMACS) project and the Marine Protected Areas Governance (MPAG) project. IMACS supported the MMAF's ongoing policy and institutional development, districts, and later, provinces in its key sites in the central and eastern parts of Indonesia. It also addressed climate change adaptation and disaster risk reduction, especially in coastal communities. MPAG had three main streams of work: (i) establishment of a sustainable MPA national system; (ii) advancing MPA management effectiveness; and (iii) assessing MMAF capability to implement a host country MPA system. MPAG was based partly on the previous regional CTSP. The CTSP introduced to the MMAF a science-based approach to identifying priorities and developing plans to improve MPA effectiveness, benefits, and coverage. The aim was to improve marine conservation across Indonesia through the establishment of a national MPA system and supportive policies, and the adoption of national MPA management effectiveness protocols. MPAG sought to support the MMAF to make further significant progress in the establishment and strengthening of MPAs, and to initiate MPA networks. This included the conceptualization of indicators for an ecosystem-based fisheries co-management approach over three years, with MPAG providing support for implementation.

MPAG was especially focused on institutional support for local and provincial governments. Staff expertise in local and provincial government agencies for marine affairs and fisheries was generally limited, so MPAG seconded staff to work at the local government level, in addition to providing training. MPAG recognized the opportunity to work with various levels of government to identify conflicting regulations, and instances where there was a lack of regulation and technical guidelines to assist with implementation at the local level. It also helped to develop national-level draft regulations and guidance. The MPAG evaluation stated that regulation and guidance needed to be developed with more consultation, but that the scientific caliber of the guidance was useful and very much needed. One of the main findings regarding capacity-building was that MPAG training needed to be more closely integrated based on a good understanding of government procedures

and regulations. Training programs also should be aimed at supporting the MMAF's own training center rather than provided as separate programs that do not add to the capacity of the MMAF to continue high-caliber training programs.

IMACS developed important management tools, including I-FISH, a database management system for fisheries, and I-CATCH, a marine climate adaptation tool, and provided extensive support for the design of MPAs. USAID/Indonesia also recognized that, while the creation and governance of MPAs was important, focusing on sustainable fisheries and their relationship to coastal livelihoods, management of stocks, and increasing the value-added from fisheries was an urgent priority and a natural complement to its MPA governance work. This refocus on fisheries was boosted by the election of President Widodo in 2014 and the appointment of MMAF Minister Susi Pudjiastuti, who focused attention on illegal, foreign fishing boats, and on protecting Indonesia's marine fisheries and sovereignty.

Indonesian marine biologist observing a hawksbill turtle in an MPA in Eastern Indonesia. PHOTO: JAMES MORGAN/WWFSEA

The 2015-2020 USAID/Indonesia marine program has absorbed the lessons learned from the previous one, and has more integrated target areas for fisheries and marine conservation activities, as well as an additional focus on illegal fishing. This program includes the Sustainable Ecosystems Advanced (SEA) project, the Supporting Nature and People – Partnership for Enduring Resources (SNAPPER) project, a continuation of the NOAA Interagency Agreement, the Blue Abadi Fund, and a grant to INTERPOL.

THE CHALLENGE OF INTEGRATED COASTAL ZONE MANAGEMENT (ICZM). Over the nearly 25 years of USAID's institutional development and field activities on marine affairs and fisheries in Indonesia, interventions gradually evolved. Starting with the improved management of a few marine national parks and integrated coastal zone management (ICZM) interventions, the activities moved on to the development of a large MPA network (with the GOI aim of protecting 20 million hectares of marine biodiversity), sustainable local fisheries management, some ecotourism and community development, and the certification of fisheries for export.

Although Indonesia has had a formal policy of supporting ICZM and has received technical support from donor agencies (e.g., CRMPs I and II, and COREMAP), Indonesia's coastal areas require a much larger effort focused on effective ICZM. An increasing proportion of the country's population is moving to, and working in, coastal cities. This greatly increases the amount of pollution degrading the coastal environment and its fragile ecosystems. In addition, climate change is leading to a gradual rise in sea level and greater storm intensity, making coastal populations vulnerable to displacement and economic losses. Intensive development of the coastal zone has frequently led to the removal of mangrove forests, which are essential buffers against wave damage and are important for fish nurseries. Mangroves are also threatened by the rising sea level.

All the NRM Program's marine projects have included some aspect of ICZM, including coastal planning, fisheries management, climate change adaptation, and disaster risk reduction, as well as strengthening the capacity of the local Marine and Fisheries Service Agencies (DKPs). However, the economic and environmental complexity of coastal zone issues, and the NRM Program's own experience, suggest that greater direct engagement with coastal communities is essential to effectively address these complex issues. Such an approach means designing interventions that support sustainable community-led initiatives, or joint community-NGO-local government initiatives that focus on sustainability. USAID/Indonesia's SEA Project has advanced marine spatial planning processes to completion in two provinces, Maluku and North Maluku, with a third province, West Papua, expected to reach completion in 2019.

SUSTAINABLE FISHERIES MANAGEMENT. The MMAF's draft 2015-2019 strategic plan shows that the GOI has significantly stepped up its commitment to sustainable fisheries management. In fact, MMAF's request for IMACS assistance to draft the new strategic plan should be considered a major project success. The first integrated seascape program (2010-2015) helped to support the MMAF's shift toward sustainable capture fisheries, but the impact of that support on Indonesia's fisheries has not yet been fully assessed, given the sometimes-long lag time in fisheries recovery and in human behavior change. This program certainly strengthened capacity at the national, provincial, and local government levels, addressed skills gaps, and encouraged stakeholders to implement the tools it developed. Nevertheless, according to an evaluation of the program, continuing institutional weaknesses, especially at the subnational level, have hampered full adoption of these new tools.

As a marine program evaluation noted, focusing only on institutional strengthening will not be enough to achieve the project's strategic goals of sustainable fisheries, improved marine biodiversity conservation, and improved resilience of coastal communities to climate change. Without an implementation strategy for this plan and an improved enabling environment, any institutional strengthening of the MMAF will lack direction and operational capability to achieve the USAID marine program/MMAF strategic goals.

The MMAF has continued to focus on a reduction of illegal, unregulated, and unreported fishing (IUUF). There is evidence that sharply reducing IUUF can spur fishery recovery, often at little or no cost to local economies or their food security. Indonesia recently implemented aggressive policies that have resulted in a reduced total fishing effort of at least 25 percent, illustrating with empirical evidence the possibility of achieving fisheries reform of IUUF without short-term losses to the local fisheries economy. The SEA Project has been active in advancing law enforcement frameworks at national, regional and local levels to enable systematic improvements in regulatory compliance.

This case demonstrates the value of an early and sustained effort at building institutional capacity, and sound policymaking in a vital resource sector by:

- Leveraging global and domestic best practice, research, and training to build government capacity, from a very low base;
- Working with both national and subnational governments to build and strengthen MMAF capacity to support sustainable fisheries and in building partnerships with often-marginalized coastal fishing communities; and
- Providing policy support and capacity-building in support of marine spatial planning for ICZM and the need to work across other sectors to effectively implement good coastal management.

CASE STUDY F: BUILDING CAPACITY FOR DEVELOPING AND USING SPATIAL PLANS IN PAPUA PROVINCE

Spatial planning has been a recurring theme of USAID's NRM Program from its beginning. But it became especially important after 1999, with the beginning of Indonesia's move to decentralization and the NRM Program's gradual shift to a landscape and seascape focus for project design and implementation. In the 1980s, in Indonesia spatial plans were frequently developed for river basin management, though they were implemented by administrative jurisdictions (provinces and districts). Lack of prior consultation with affected parties during the plan's preparation, such as companies, communities, and agencies in charge of infrastructure planning and siting, sometimes led to spatial plans being ignored. The lack of good spatial data infrastructure and mapping standards (at that time) was also problematic.

NRM PROGRAM EXPERIENCE WITH SPATIAL PLANNING. The early NRM Program experience with spatial plans was relatively limited. The NRMPs I, II, and III worked on improvements to forest planning at the Department of Forestry, but with only limited success given the largely political nature of forestry at the time. Spatial planning of protected areas and other specific sites was more successful, as can be seen in the eventual participatory zonation of Bunaken Marine National Park (MNP), the Coastal Resource Management Program's (CRMP's) community marine protected areas (MPAs) in North Sulawesi, CRMP's development of spatial atlases of Lampung Bay in Sumatra and Bintuni Bay in West Papua.

However, the first major effort at carrying out spatial planning at scale was in the Environmental Services Program (ESP) in the mid-2000s. ESP's main goal was to provide clean water supplies, mainly to downstream users in towns and cities, along with improved nutrition and sanitation. Key to the sustainable provision of clean water was protecting watersheds, especially upper watersheds, which, in turn, required good spatial planning and zoning of activities in watersheds (this was also the rationale for the use of spatial planning in the 1980s). In 2008, ESP was given additional resources to provide technical assistance to both Aceh and Papua provincial governments for the effective execution of their autonomous budgets, leveraging their own local resources.

Spatial Planning: Article 1, paragraph 5 of Law No. 26/2007 on Spatial Planning explains that land use planning encompasses efforts at developing a system of spatial planning, spatial utilization and control. Spatial planning in this sense involves the identification of problems, the exploration and analysis of alternate courses of action and the making of decisions by government officials and their implementation. This system of spatial management is based on certain principles, the most important ones being sustainability, protection of the public interest and legal certainty and justice. [From: *Spatial Management in Indonesia: From Planning to Implementation*, p. 23.]

Specifically, in Aceh, USAID technical assistance focused on leveraging advice on the province's forestry and energy activities under Aceh Green, including working at the district and community level on participatory conservation land-use planning. In addition, ESP's existing field schools had already built community consensus within the program's areas to protect forestry and biodiversity, while developing sustainable livelihoods in watersheds along the west coast corridor. ESP built on this approach to implement sustainable community forestry and integrated development practices to protect additional areas of high biodiversity value. Support was also provided through ESP to increase access for the poor to clean water, promoting sustainable forestry practices and integrated development through ESP's existing field schools.

In Papua, technical assistance was also provided to leverage the large budgets of provincial and district governments for the environment. This technical assistance was to provide a clear road map for the creation of legislation that would codify both land-use mapping and the policy directives governing private investment, such as biofuels plantations development, which directly impacts the local management of forests and watershed areas. USAID technical assistance aimed to leverage both local government resources and investment from private firms operating in the forestry sector of Papua, and therefore the land use of this province.

SPATIAL PLANNING UNDER THE INDONESIAN FORESTRY AND CLIMATE SUPPORT (IFACS) AND LESTARI PROJECTS. Under IFACS, spatial planning was linked to the new legal requirement for district governments to develop Strategic Environmental Assessments/Low Emission Development Strategies (KLHS-LEDS). These were meant to inform and guide the development of spatial plans. Through USAID/Indonesia's support to 11 districts with IFACS technical assistance, all 11 districts drafted KLHS-LEDS and spatial plans. However, as with the spatial plans of the 1980s, it was often difficult to obtain final approval of these plans, and to link the plans with zoning and investment licensing activities (for example, linking with Community Conservation and Livelihood Agreements (CCLAs). Also, only limited economic analyses were included in the spatial plans and KLHS-LEDS, which limited their usefulness for investment planning, especially for proper consideration of alternatives.

An important complement to spatial plans was IFACS's development of Landscape Conservation Plans (LCPs), which assessed priority parts of landscapes, especially forests and peatlands, and their values for conservation zoning and protection activities. LCPs were also used to determine the number and nature of threats to the landscape from human activities, such as agriculture and infrastructure, together with fires and floods, and how to prevent or limit the impacts of these threats. LCPs and their impacts on spatial plans were especially important in Papua, where a significant proportion of forest land must be kept under protection by provincial regulations (see Green Papua, below).

Stakeholders can weigh in on the development of spatial plans through the mechanism of the multi-stakeholder forum (MSF), though it is difficult to assess how important the inputs and/or feedback

on draft plans have been on the development of final spatial plans, not to mention the implementation of the plans. Spatial planning over the long term has the potential to shift the development paradigm in districts, but for this to be successful it must be accompanied by district-level leaders who understand and support sustainable development and LEDS. Strong constituencies for spatial planning, such as stakeholders involved in well-run MSFs, can advocate for improved decision-making and good governance. Such advocacy can complement good district leadership. In Papua, strong constituencies are especially important given the dominant role of customary law in community land tenure. Spatial planning is only a tool to support the achievement of reduced deforestation and achieving greenhouse gas emission reduction targets over the short term; follow-through implementation and monitoring actions from the private sector, civil society, and government are essential.

Districts with draft or finalized spatial plans still need to support the development of a robust KLHS, since this information is legally mandated and is a critical input to any revisions or changes to the spatial plan and future processes. In addition, stakeholders in MSFs, CSOs, and NGOs can all use the KLHS process for their planning and to advocate for more environmentally sustainable forms of land use.

In Papua Province, the development of spatial plans has been technically supported through the Spatial Planning Management Unit (SIMTARU) at the provincial-level development planning agency (Bappeda). This management unit manages the geographic information system (GIS)-based spatial data infrastructure (SDI) that is mainly operational at the district level. Development of spatial plans at this level, however, has often been significantly delayed by the low technical capacity of government partners to carry out the kind of rigorous spatial planning, KLHS development, and GIS mapping work that the regulations require. IFACS conducted extensive GIS training focused on the skills needed by district officials to analyze natural resources and environmental issues involved in the planning process. These officials, in turn, became members of "SDI networks." However, the relatively low district-level planning capacity limited the robustness of plans aggregated at the provincial level. The small populations of many of Papua's districts further complicated the development of adequate spatial planning capacity due to the scarcity of well-educated people.

SIMTARU has been operationalized for land-use planning and monitoring, but is only being fully used by Bappeda, the provincial development planning agency, at this stage. However, using spatial plans and medium-term development plans, Bappeda has rejected district-level proposals that would lead to significant conversion of protected forests. LESTARI is assisting the provincial government and working at the individual landscape level on implementation of the land-use plans.

In some instances, the provincial Bappeda failed to coordinate with districts on spatial plans and, as a result, provincial spatial plans often included infrastructure development that threatened forest and peatland conservation at the district level. This was especially controversial because of the Papuan provincial government's 20-year spatial planning law that requires maintaining 90 percent of the province under forest (the Papua Green Growth Policy). This suggests that the LCPs perhaps have played less of a role than they should have in land-use planning, at least at the provincial level. There is also concern about the sustainability of spatial planning technology and operating costs.[75]

[75] Integra, LESTARI Indonesia Midterm Evaluation (2018), 31.

SPATIAL PLANNING AND ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT IN PAPUA. Despite the limitations and hurdles that the spatial planning exercises faced, almost all government and non-government informants the study team met with on a recent field trip to Papua agreed that spatial planning played an essential role in environmentally sound development, and that it should continue to be a focus of assistance efforts (which it is via the LESTARI Project). However, most also agreed that spatial plans are not being used as much as they should be in actual land-use zoning, investment planning, and monitoring, and that this remains an important implementation challenge down to the village or infrastructure development level.

An example of how spatial plans can be used to check environmentally (and economically) detrimental investment proposals comes from the LESTARI Project. In 2017, Mimika District proposed converting 32,000 hectares of forest to create an industrial estate, including land for a smelter by the company PT Freeport Indonesia. This very large development would have led to the destruction of high conservation value protected forest, including carbon-rich mangroves, sacred cultural areas, and other state forest areas—by converting them to private land status. The Papua provincial government used the Spatial Planning Management Unit to analyze the proposal and denied the request because it violated the Green Growth-based spatial plan regulation. Moreover, the Spatial Planning Management Unit's analysis showed that only about 4 percent (about 1,200 hectares) of the land area requested for conversion would be needed for the industrial estate and smelter construction.

Nevertheless, existing concessions, especially oil palm, have tended to expand their boundaries in parts of Papua, encroaching on protected forests or land under village management. Hence, in addition to the evaluation of investment proposals, existing concessions need to be regularly monitored by district government officials working with nearby community members to leverage the effectiveness of the limited number of forestry service officials.

ANNEX II. USAID/INDONESIA ENVIRONMENT PORTFOLIO RETROSPECTIVE STATEMENT OF WORK

Background

The Governments of Indonesia and the U.S. have a long history of cooperation in the realm of natural resources management. Perhaps this is to be expected as both countries share a similar sized geographic sweep encompassing extensive land, forest, coastal, marine and biologic resources. While one is tropical and the other temperate, both countries also share many common objectives. These include tapping these resources for economic growth while at the same time conserving forests and biodiversity, promoting sustainable fisheries, and addressing climate change. Both countries, too, are confronted with the need for systems and institutions capable of governing and managing these far-flung resources to achieve optimal outcomes, while adapting to changing political economies.

No other country has been as engaged with Indonesia in this field, and no other U.S. Government agency has been as involved in this history as USAID. Throughout the 1970s and 1980s, USAID/Indonesia supported several agricultural, rural and regional development activities, primarily through its concessional lending operations. Most of these focused on rural households and food production, and entailed irrigation water management, soil conservation, integrated pest management practices, and the like. But over time, there was growing recognition of the global importance of Indonesia's forests, and of its rich marine and terrestrial biodiversity. Concerns grew that the exploitation of this natural endowment, while fueling Indonesia's economic growth since independence, was abetting massive land degradation and unsustainable fishing practices. These, in turn, threatened the loss of critical natural habitat and Indonesia's biodiversity, as well as the country's long-term economic and political stability. Local conflicts over access and rights of use also threatened political stability and served eventually as a stimulus for decentralization of authority.

The upshot was USAID/Indonesia's first explicit foray into natural resources, the grant-financed NRMP, which began in the early 1990s. This was soon supplemented by other investments, for example, the founding of the Indonesian Biodiversity Foundation (KEHATI), the Indonesia Coastal Zone Management Program (*Proyek Pesisir*), the Biodiversity Support Program (Kemala), and others. In all, USAID/Indonesia's presence in forestry and land management, biodiversity conservation, coastal and marine management, and, subsequently, climate change mitigation and adaptation, has progressed continuously for more than 25 years.

Changing Indonesia Context

Those years have witnessed huge changes in Indonesia's political and economic context, including:

- Asian Economic Crisis (AEC) in 1997, followed by the resignation of President Suharto, the end of the New Order regime, and the significant reduction of the military's role in Indonesia's political and administrative institutions.
- Five different presidential administrations since Suharto.
- Lifting of controls on the media, and the flourishing of print, TV, and social media channels.
- Increase in the number and political sophistication of political parties, NGOs, and civil society.
- Creation of the new Ministry of Marine Affairs and Fisheries in 2000, and the merger of the Ministries of Environment and Forestry in 2015.

- Shift in management responsibility and revenue receipt from natural resources from the center to the districts and, more recently, provinces.
- Indonesia overtaking Malaysia as the world's largest producer of palm oil, and the growth of the pulp and paper industry in parts of Sumatra.
- Increased interest in NRM by Indonesian universities, and large increase in the number of Indonesians with advanced degrees in environmental and NRM disciplines.
- Major growth in number and influence of Indonesian CSOs addressing environmental issues.
- Climate change and the role of peatlands in stemming Indonesia's emissions becoming major concerns, particularly following El Niño fire episodes in 1997-98 and 2015.
- Timber legality assurance system (SVLK) institutionalized within the forest management and processing sector, as a condition of the EU Voluntary Partnership Agreement. Coincides with Lacey Act Amendment prohibiting illegally logged timber from entering the U.S. market.
- The current administration's focus on Indonesia's archipelagic nature, and renewed emphasis on enforcement in the fisheries sector.

Throughout this period, USAID/Indonesia programs have adjusted to the changing context and have sought to address emerging needs and opportunities in Indonesia's environment sector.

1. Retrospective Purpose and Objectives

To capture the record and legacy of USAID/Indonesia's expansive work in NRM, the Mission will produce a Retrospective of USAID's Environment Portfolio in Indonesia over the past 25 years. USAID has tasked the Monitoring & Evaluation Support Project (MESP) with producing this Retrospective.

The purpose of this Retrospective is to inform and enhance USAID programming in Indonesia. At the specific objectives level, the Retrospective and the products that come out of it will:

- Serve as a high-level record of USAID-supported activities in country.
- Demonstrate to key audiences what USAID's investment has achieved in Indonesia and share lessons learned for programs to come.
- Explain why activities today they are how are, based on previous experience and lessons.
- Provide inputs for the development of a new Indonesia Country Development Cooperation Strategy (CDCS) and Tropical Forests and Biodiversity Assessment (118-119), planned for 2019.
- Inform USAID's strategy for achieving a legacy of sustainable impacts in Indonesia's NRM sector.
- Reinforce the value of partnership and engagement in Indonesia between USAID and the GOI.

Audiences for this Retrospective and its products include USAID and its GOI partners; U.S. Government stakeholders including USAID/W and Congress; and USAID implementing partners (IPs) and development practitioners operating in Indonesia more generally.

2. Program Scope of the Retrospective

This Retrospective will examine programs directly supported through USAID/Indonesia's budget and resources, that is, activities procured and/or managed by the Indonesia Mission. Furthermore, the Retrospective will focus exclusively on activities that address key NRM topics, including: conserving biological diversity and natural habitats, protecting wildlife, mitigating and adapting to

climate change, and improving the governance and management of land, forest, and marine resources.

An initial list of projects to be included is presented in Annex III. Beyond the larger projects listed there, USAID/Indonesia has supported numerous international and Indonesian universities, CSOs, and NGOs through small grants and cooperative agreements. MESP will work with Mission Environment Office to finalize the list of activities to be covered by this Retrospective.

3. Retrospective Methodology

The objective of this Retrospective is not to serve as an evaluation of the USAID activities being reviewed. Such in-depth examination of the specific performances, outputs, and outcomes of each program are beyond the scope of this task, particularly since USAID has already conducted midterm and/or final evaluations of nearly all of the activities covered by this Retrospective. By taking a higher-level view of USAID's investment in Indonesia's NRM across 25 years, the Retrospective will yield information on the results of the Mission's overall portfolio, and the impacts felt in the realm of Indonesian NRM.

The Retrospective will examine project-specific details and will produce case studies of important activities and their impacts. But the overall analysis will look at interventions, successes, and failures more broadly, seeking to identify, and where possible to quantify, what differences USAID investments have made in the management of natural resources in Indonesia.

The table below groups the questions to be addressed by the Retrospective into three broad topics related to USAID's NRM portfolio in Indonesia: history and evolution, impacts, and value.

	Topics	Illustrative Questions
1.	**History and Evolution**	1. What have been the scale, scope, locations, and evolution of USAID-Indonesia collaboration in implementing NRM programming? 2. How has NRM programming evolved over time? How has this evolution been responsive to needs and opportunities (GOI, CSO, private sector)? 3. What have been the key inflection points over this period? How has each activity led to the next, and how and why were approaches adjusted?
2.	**Impacts**	1. What impacts have resulted from USAID's investment over time? 2. What have been the key successes, failures, and lessons learned from USAID's NRM programming? What obstacles impeded NRM activities? 3. In what ways have NRM programs affected capacity and behaviors at the individual and institutional levels? 4. How have USAID programs influenced the content and quality of public discussion, policy, and practice of conservation and NRM within Indonesia's rapidly changing context since 1990? 5. How has the long-term, multi-program nature of USAID's investment led to broader or more sustainable impacts? What aspects of the long-term, multi-program approach have posed challenges?
3.	**Value**	1. What has been the value of the USAID's long-term partnership in Indonesian NRM? 2. What has been the return on USAID's investment? Why should USAID continue this investment?

	3. Are the returns on investment greater in some programmatic areas vs. others (e.g., marine vs. terrestrial; Eastern vs. Western Indonesia)? 4. What signs of sustainability and lasting value stem from USAID NRM activities? 5. What tools or innovations have been produced and institutionalized by Indonesian counterparts?

Measuring Impacts and Value

The nature of impacts from USAID NRM investments in Indonesia will vary in each case, and not every project to be reviewed will yield findings for every one of the questions listed above. In identifying and quantifying those impacts, per Category 2 above, the Retrospective will consider multiple potential types of impact, including but not limited to items such as:

- Quantitative improvements in NRM at the landscape, regional, or national levels, per direct or third-party benchmarks.
- Demonstrated ability by Indonesian authorities to manage natural resources in a more sustainable manner.
- Changes in public sentiment and behavior regarding NRM.
- Decline in illicit NRM activities.
- Adoption and/or continued funding of effective interventions by Indonesian resource managers, government or private.

Similarly, to measure the value of USAID's NRM activities, per Category 3, the Retrospective will consider possible economic, biological, and social welfare indicators of value and return on investment, while recognizing that in-depth statistical or economic analysis is beyond the scope of this Retrospective.

The Retrospective team will work with the USAID Environment Office at the beginning of this task to finalize the parameters to be used to measure impacts, value, and return on investment.

Retrospective Implementation Steps

To answer the above questions, MESP will undertake the following steps:

- **Literature review**. Much of the information to be examined by the Retrospective team will come from reports, evaluations, products, and other information generated by or about the projects being reviewed.

- **Interviews and discussions with key informants**. The team will collect information, insights, and anecdotes from people who were involved in activities being reviewed, as implementers, managers, counterparts, beneficiaries, et al. These conversations will be face-to-face or via email, phone, and Skype.

- **Consolidation and analysis**. The team will compile and analyze collected information to determine the answers many of the questions that fall under the Impacts and Value categories described above. In addition, consolidation will include development of several case studies, highlighting activities with notable impacts or aspects. Analysis will be primarily qualitative, though some quantitative data will be analyzed as well. For both qualitative and quantitative analysis, the team will identify trends or collective impacts where possible.

- **Production of deliverables**. Following analysis, the Retrospective team will produce a number of deliverables, as agreed with USAID and as detailed below. MESP will be prepared to deliver presentations of findings and deliverables to USAID and other stakeholders at the request of the Mission.

4. Timeline

MESP will begin work on the Retrospective in late 2017 or the beginning of 2018, depending on the availability of team members during the year-end holidays. We will seek to complete the analysis and deliverables production around mid-2018. An estimated timeline is presented in the table below. MESP will finalize the implementation schedule with USAID following agreement on the Retrospective SOW.

Estimated Timeline for Environment Portfolio Retrospective

	2018					
Task/ Deliverable	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
SOW finalization, team recruitment, initial literature collection	End 2017					
Retrospective literature review and informant interviews						
Consolidation & analysis						
Deliverables production						
Submission of deliverables to USAID; revision and finalization						
Presentations to USAID or other stakeholders, as required						

5. Deliverables

The Environment Portfolio Retrospective will produce several deliverables, each responding to targeted objectives and audiences. Working with USAID, MESP will determine what information—in what forms and packages—will be most compelling to each audience. All deliverables should be user-friendly and accessible to multiple audiences. An initial list of planned or possible deliverables is presented below:

- White paper addressing the key findings and answering the core questions under the SOW categories detailed above. This white paper will form the core of the Retrospective report and will be 30-40pp in length. As a first step following mobilization, the Retrospective team will develop and then finalize with USAID a detailed outline for the white paper and case studies to be produced under this SOW.

- Case studies of projects with significant findings or impacts, and which illustrate key lessons learned. Case studies should be succinct documents, 8-10pp in length, and should focus entirely on the relevant key findings. Case studies should not seek to summarize or assess their subject NRM activities. MESP will produce five such case studies that cover a diverse selection of activities under the Retrospective, for example, terrestrial and marine; national and landscape-level interventions; Eastern and Western Indonesia; etc. MESP will select case study subjects in consultation with USAID.

- Spreadsheet table/database of relevant projects implemented by USAID/Indonesia during the period covered by the Retrospective. Data for each activity will include title, partners, funding, locations, and mechanism.

- Timeline infographic of USAID NRM projects and related or significant developments in Indonesia during the same period. The timeline will provide historical context for Mission interventions.

- Retrospective launch event for USAID and Indonesian and international stakeholders, including presentation materials.

- Possible: short video detailing the evolution of programming and growth in Indonesia's capacity to manage resources.

- Possible: Graphic narrative story highlighting case studies, key lessons, or other notable findings from the Retrospective.
- A final list of deliverables will be included in the Retrospective design. Retrospective deliverables will be drafted primarily in English, with Indonesian-language items produced per USAID request. Any presentations delivered by MESP will include slide decks provided to USAID and attendees.

6. Retrospective Team Composition

To produce the Environment Portfolio Retrospective, MESP will deploy a core team of three specialists based in Jakarta (MESP office) and Washington (MSI HO). At least one team member will have significant experience related to USAID/Indonesia's NRM efforts, and all team members must have strong analytical and writing skills, particularly in English language.

MESP team personnel will perform quality control, management, and logistics support throughout the execution of this task.

7. USAID Participation

USAID personnel will interact with the Retrospective team as needed, with MESP coordinating necessary logistics. MESP will keep USAID apprised of changes or developments that necessitate significant decision-making or modification of the Retrospective SOW or implementation.

8. Budget

A summary budget will be submitted to USAID for review following agreement of this SOW.

ANNEX III. RELEVANT USAID/INDONESIA NATURAL RESOURCE MANAGEMENT PROJECTS: 1990-PRESENT AND MAJOR ACHIEVEMENTS

1. RELEVANT NRM PROGRAM PROJECTS

Activity	Implementer	Partners	Mechanism	Amount
Natural Resources Management Project: 1990-1996	Associates in Rural Development	Ministry of Forestry, World Environment Center	Contract# AID-497-0362-C-00-1064-00	17,221,139
Biodiversity Support Program: 1992-2000	A global consortium of WWF, The Nature Conservancy, and World Resources Institute	*Yayasan Kemala*, Biodiversity Conservation Network	Indonesia Mission buy-in to Cooperative Agreement# AEP-A-OO-92-00043-00	11,000,000
Grants to international and environmental NGOs: 1990s to present	Conservation International, The Nature Conservancy, World Wildlife Fund for Nature, World Education, World Agroforestry Center, Academy for Educational Development		Grants	30,000,000
Indonesia Biodiversity Foundation: 1995-2005	*Yayasan Keanekaragaman Hayati Indonesia* (KEHATI)		Cooperative Agreement# AID-497-0384-A-00-5011-00	18,990,578
Coastal Resources Management Project I: 1995-2003	University of Rhode Island Coastal Resources Center		Cooperative Agreement# PCE-A-00-95-0030-05	13,000,000

Activity	Implementer	Partners	Mechanism	Amount
Coastal Resources Management Project II: 2003-2005	International Resources Group		Contract# 497-M-00-03-00032-00	4,494,097
Natural Resources Management Project II: 1997-2002	International Resources Group	Conservation International, The Nature Conservancy	Contract# PCE-I-806-96-00002	1,663,500
Natural Resources Management Project III: 2002-2004	International Resources Group		Contract# GS-10F-0076M	8,213,245,96
National Oceanic and Atmospheric Administration support: 2009-2019	National Oceanic and Atmospheric Administration Coral Reef Conservation Program	Ministry of Marine Affairs and Fisheries, Provincial and district fisheries offices	Participating Agency Project Agreement	4,669,100
U.S. Department of Interior support: 1998-2019	United States Department of Interior International Technical Assistance Program	Ministry of Environment and Forestry	Participating Agency Project Agreement AEG-T-00-06-00003-00 (FY 2013), AID-486-T-13-00002 (FY 2014-2018)	6,297,025
United States Forest Service support: 2004-2019	United States Forest Service International Programs	Ministry of Environment and Forestry, Provincial forestry offices	Participating Agency Project Agreement	5,164,964

Activity	Implementer	Partners	Mechanism	Amount
PRESTASI 1, 2, 3: 2003 - 2019	Indonesian International Education Foundation (IIEF)	Individual students completing graduate studies	Contract# AID-OAA-I-12-00009	5,263,056
Orangutan Conservation Services Program: 2007-2010	Development Alternatives Incorporated	Orangutan Foundation International, World Education, The Nature Conservancy, Wildlife Conservation Society	Contract# 497-C-00-07-00016-00	11,226,143
Environmental Services Program: 2004-2010	Development Alternatives Incorporated	The Urban Institute, Hatch Mott MacDonald, Johns Hopkins Center for Communications Programs, FIELD Indonesia, John Snow, Inc., Rare Center for Tropical Conservation, PERPAMSI/FORKAMI, Social Impact, CO2OL-USA, Kleiman International Consultants, Inc., Evensen Dodge International, Mayflower Partners LLC	Contract# 497-M-00-05-00005	18,582,643
Indonesia Forest and Climate Support: 2010-2015	Tetra Tech	Tropical Forest Foundation, Swisscontact Indonesia Foundation, Conservation International Foundation, World Wildlife Fund/ Indonesia, Forum Orangutan Indonesia, Yayasan Leuser	Contract# AID-497-TO-11-00002	40,773,437

Activity	Implementer	Partners	Mechanism	Amount
		International, The Zoological Society of London		
Sustainable Landscapes Partnership: 2011-2014	Conservation International	Global development alliance between USAID and the Walton Family Foundation	Cooperative Agreement# AIDOAA-A-11-0000	6,200,000
USAID Partnerships for Enhanced Engagement in Research: 2011-2019	U.S. National Academy of Science	Indonesian universities partnering with U.S. universities	Indonesia Mission buy-in to Contract# AID-OAA-I-15-00016 Order No. AID-OAA-TO-16-00012	800,000
University Partnerships	1. University of California, Los Angeles, Universitas Udayana (Denpasar), Universitas Diponegoro (Semarang), Universitas Negeri Papua (West Papua); 2009–2012 2. Texas Agriculture and Management (Texas A&M University), Institut Pertanian Bogor (Bogor), Universitas Udayana (Denpasar), Universitas Sam Ratulangi (Manado); 2010 – 2013 3. Columbia University, Institut Pertanian Bogor (Bogor); 2011–2014 4. University of California, Santa Cruz (UCSC), Universitas Diponegoro (Semarang), Universitas Hasanuddin (Makassar), Eijkman Research Center; 2011 – 2014 5. University of Texas El Paso (UTEP), Universitas Mulawarman (UNMUL), Rare (Conservation NGO); 2012 - 2015 6. Columbia University/University of Indonesia;		Cooperative Agreements	5,892,752

Activity	Implementer	Partners	Mechanism	Amount
	2012 -2015 7. The State University of New Jersey (Rutgers), Universitas Nasional (UNAS); 2014 – 2019 8. Oregon State University, University of Tanjung pura, University of Mulawarman, Indiana University. 2013 - 2018			
Indonesia Marine and Climate Support: 2010-2015	Chemonics	University of Rhode Island-Coastal Resources Center, People and Nature Consulting International, PT Ikon Utama, PT iWhite Solutions, Universitas Gadjah Mada, Unit Penelitian dan Pengabdian Masyarakat, Sekolah Tinggi Perikanan, Santiri Foundation, Yayasan Cinta Alam, PT Harini Duta Ayu, Masyarakat dan Perikanan Indonesia, PT Moores Rowland Indonesia, PT DHI Water and Environment	Contract# AID-497-TO-11-00003	21,894,413
Governing Oil Palm Landscapes Sustainably: 2015-2020	Center for International Forestry Research	Ministry of Environment and Forestry	Grant	5,421,714

Activity	Implementer	Partners	Mechanism	Amount
LESTARI: 2015-2020	Tetra Tech	World Wide Fund for Nature, Wildlife Conservation Society, Tropical Forest Foundation, INFIS/Mongabay, Michigan State University	Contract# AID-497-TO-15-00005	46,831,909
Sustainable Ecosystems Advanced: 2016-2021	Tetra Tech	World Wide Fund for Nature, Wildlife Conservation Society, Coral Triangle Center, *Masyarakat dan Perikanan Indonesia,* Marine Change, *Asosiasi Perikanan Pole & Line dan Handline Indonesia*, RARE – Indonesia, Indonesia Locally Managed Marine Area Foundation, The Nature Conservancy	Contract# AID-497-C-16-00008	31,857,614
BIJAK: 2016-2021	Chemonics	Wildlife Conservation Society, Kemitraan	Contract# AID-497-TO-16-00002	19,614,457
SNAPPER: 2017-2019	The Nature Conservancy		Cooperative Agreement# AID-497-A-16-00011	2,000,000

2. SELECTIVE ACHIEVEMENTS AND OUTCOMES OF NRM PROGRAM PROJECTS

NRMP II/III, 1997-2004

IMPACTS	OUTCOMES
485,000 ha. of protected areas with improved practices, out of 468,200 ha targeted	41 advances in national park management policies
46,135 ha of improved forest management practices, out of 18,900 ha targeted.	104 advances in forest management policies
	19 agreements for protected areas management

ESP, 2004-2010

OUTCOME	OUTPUT
295,965 households (or 1,887,410 people) have increased access to clean water	57 local policies related to land tenure and community access rights developed
	22 Master Agreements signed by PDAMs and local banks, and 12,111 new households with access to clean water. ESP leveraged $1,211,100 for these new connections
	One final provincial Spatial Plan produced and submitted to the provincial government to promote people-based development and sustainable NRM in Papua
	One final provincial regulation codifying an investment code for biofuels and palm oil in Papua province was completed

IFACS, 2010-2015

PROJECT LOGIC LEVEL	PERFORMANCE TARGET	TARGET	TOTAL ACHIEVEMENTS
Impact (change in environmental, economic and social conditions)	Quantity (tons) of CO_2 equivalent (e) emission benefits per annum from improved forest management, improved forest protection, and afforestation	6 million tCO_2e annum	5,326,656 $tC0_2e$
	Number of beneficiaries receiving economic benefits from Low Emission Development Strategies (LEDS) activities	12,000 people	12.728 people

PROJECT LOGIC LEVEL	PERFORMANCE TARGET	TARGET	TOTAL ACHIEVEMENTS
	Number of hectares under improved sustainable natural resource management	3 million ha	4.143.578 ha
Outcome (change in practices due to IFACS interventions)	Number of private sector entities (concessionaires) that implement CMMPs	15	11 CMMPs implemented
	Number of districts with an operational monitoring system in place	11	8 districts
	Number of Spatial Data Infrastructures (SDIs) with increased capacity to collect, analyze and report valid data	11	7 SDIs
	Number of districts with draft Spatial Plans incorporating recommendations from Strategic Environmental Assessment	11	11 districts
	Number of operational MSFs	11 MSF	11 MSFs operational
	Number of regulations and plans promoting sustainable natural resources management developed	5 regs/plans	19 regulations
	Number of CCLAs signed	160	269 signed
Outcome (changes in knowledge, attitudes, skills and aspirations)	Number of villages with increased capacity to adapt to the impacts of climate variably and change	54 villages	76 villages
	% of people with increase capacity to apply spatial planning (% against the total number who attended the course), Spatial Plans	75%	89%
	% increase in recognition and understanding of major conservation, forestry, and climate issues by governments, stakeholders and local communities in targeted landscapes	50%	92%
Reach	Number of people receiving USG supported training in natural resource management and/or biodiversity conservation	3,500	8,626 people trained
	Number of people exposed to USAID IFACS-supported information on forest and land use-based conservation issues	143,000	439,037 people exposed
Output	Amount of investment leveraged in USD from private and public sources for climate change	$4 million	$5,214,832

ANNEX IV: SOURCES OF INFORMATION

A. LIST OF KEY INFORMANT INTERVIEWS AND INTERVIEW SCHEDULE

DATE	NAME OF KEY PERSON	POSITION	INSTITUTION
27-Feb-2018	Reed Merrill	Chief of Party	LESTARI Project
2-Mar-2018	Celly Catharina	Environment Office	USAID Indonesia
5-Mar-2018	Mirwan Gandi	Head of Spatial Sub-Division	Sub-national Development Planning Agency of Papua (Bappeda)
	Yuvenalis Ledang	Former IFACS Coordinator	
	Alex Rumaseb	Deputy Team Leader	Green Economic Growth Program for Papua Province (GEGPP)
6-Mar-2018	Ir. Timbul Batubara, M.Si	Head	Papua Provincial Nature Conservation Agency (BKSDA)
	Evie Adipati	Jayapura Coordinator	LESTARI Project
7-Mar-2018	Benja Mambai	Director Papua Program	WWF Indonesia
	Robert Mandosir	Program Manager	SETAPAK Project - The Asian Foundation
8-Mar-2018	Prihananto Setiadji ST.MT	Lecturer	University of Cenderawasih
	Syaiful Firdaus	Staff of Spatial Sub-Division	Bappeda
	Ivy Sondakh	Staff of Spatial Sub-Division	Bappeda
	Abner Mansai	Manager	Forum Kerjasama (FOKER) LSM Papua
9-Mar-2018	Frits Rumayomi	Head of Village Empowerment Agency	Jayapura District Office
12-Mar-2018	Prof. Emil Salim, M.A., Ph.D.	Advisor	KEHATI Foundation
	Mubariq Ahmad	Director	Conservation Strategy Fund
14-Mar-2018	Alan White	Chief of Party	SEA Project
	Tiene Gunawan	Deputy Chief of Party	SEA Project
15-Mar-2018	Prof. Dr. Ir. Herman Haeruman, Js.	Lecturer	Institute of Environment, University of Indonesia
	Ir. Wahyuningsih Darajati, MSc.	Director of Forestry and Water Resources Conservation	Indonesia National Development Planning Agency (Bappenas)
16-Mar-2018	Lukas Rumetna	Sorong Field Staff	The National Conservation
	Peter Mous	Chief of Party	SNAPPER Project
	Klaas J. Teule	Country Director	WWF Indonesia
19-Mar-2018	Ismid Hadad	Chairman	KEHATI Foundation
	Meity Mongdong	BLUD Manager	Conservation International Indonesia
20-Mar-2018	Aditya Utama	Director	Yayasan Masyarakat dan Perikanan Indonesia

21-Mar-2018	Ir. Andi Rusandi, M.Si	Directorate of Conservation and Marine Biodiversity	Indonesia Ministry of Maritime and Fisheries Affairs
	Yudi Herdiana	Marine Program Manager	Wildlife Conservation Society
26-Mar-2018	Ining Nurani	DRG Office	USAID Indonesia
27-Mar-2018	Noelle Veltze	Chief of Party	BIJAK Project
29-Mar-2018	Ir. Wiratno, MSc	Director of Natural Resources Conservation and Ecosystem	Indonesia Ministry of Environment and Forestry

B. ANNOTATED BIBLIOGRAPHY

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