

**PERCEPTIONS OF THE ROLE AND MANAGEMENT OF FIELD RESEARCH STATIONS
WITHIN INDONESIAN CONSERVATION**

**Case Study 3:
Operation Wallacea on Buton and Wakatobi National Park, Southeast Sulawesi**

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Introduction

This report presents my findings regarding perceptions of the management and activities of Operation Wallacea, Ltd.'s research-related activities at two sites in Southeast Sulawesi: the forest research site based at Labundo-bundo on Buton Island, and the marine research site on the islands of Hoga and Kaledupa in Wakatobi National Park. I conducted fieldwork from 13-24 October, 2005, interviewing 24 people and speaking informally with others as well as gathering my own observations. I present here results, conclusions, and recommendations for future management.

Purpose of study

What is the role of field research stations within the larger landscape of Indonesian conservation? How do institutional structures and management practices shape and constrain the activities of a station? And what are stakeholders' perceptions – government agencies, NGOs, universities, and communities – of these institutions? These questions form the core of my comparative study, "Perceptions of the Role and Management of Field Research Stations within Indonesian Conservation." My fieldwork is being conducted as a series of case studies focusing on three research sites in Indonesia: (1) Cabang Panti Research Station at Gunung Palung National Park, West Kalimantan; (2) Way Canguk Training and Research Center at Bukit Barisan Selatan National Park, Lampung; and (3) Operation Wallacea's multiple research sites on Buton Island and at Wakatobi National Park, South Sulawesi.¹

Why ask these questions? Biological research stations play an important role in furthering our understanding of the endangered ecosystems that are the focus of conservation efforts. Yet as institutions, biological research stations remain critically unstudied. Much research has been done *at* these stations, often by foreign researchers, but little has been done *on* them. Does the knowledge produced at these stations actually feed back into conservation management and policy? What relationships do they foster between foreign institutions/researchers and Indonesian stakeholders? My hope is that understanding the institutional structures, relationships, and perceptions in which research stations are embedded will enable us to think more clearly about the factors that facilitate well-functioning stations, knowledge transfer, and the application of scientific research to host-country conservation needs.

The research question

I assert that there is a complex interaction between the (1) the research and conservation activities that occur at a station, (2) the institutional structures and management practices that a

¹ Another report in which these sites are analyzed comparatively is in preparation.

station has, and (3) the way the station is perceived by Indonesian stakeholders including government agencies, NGOs, universities, and communities. While the particular historical context of each station is clearly vital as well, I suggest that this relationship between activities, structures, and perceptions is also partly a structural and institutional matter. Figure 1 is a simplified representation of this Relationship, and Table 1 elaborates on these variables.

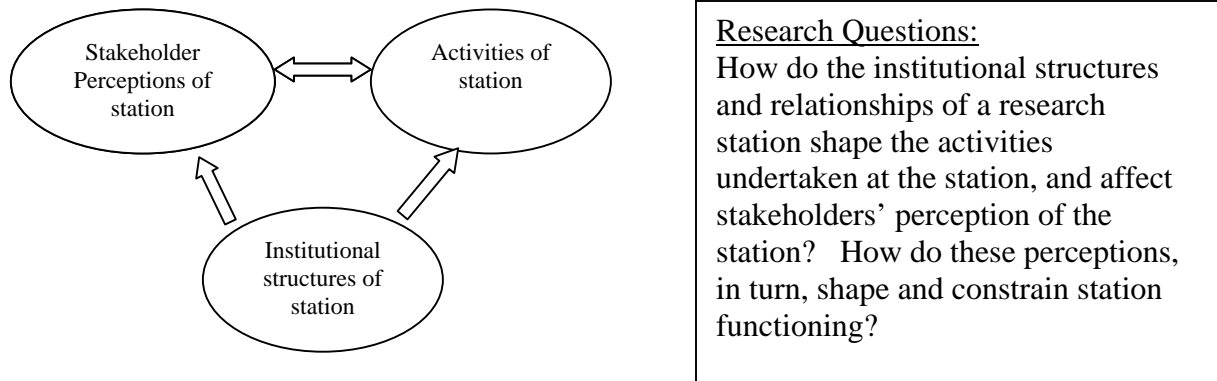


Figure 1: Schematic representation of research station function and stakeholder perception.

Table 1: Broad description of research variables.

Variable	Possibly relevant components for investigation
<i>Formal institutional structures and management relationships (independent variable)</i>	Institutional sponsor/affiliate: a foreign or Indonesian university? A government body? A private actor? Formal Memoranda of Understanding (if any) Relations with government agencies (National Park management agency, Indonesian Institute of science, local government, etc) Relations with local/provincial university Relations with local community Relations with NGOS or other institutions Relations with other actors (e.g. tour operators)
<i>Station activities (dependent variable)</i>	Research agenda: what is studied here? Is there a coherent research plan or solely a researcher-by-researcher system? Types of researchers/projects: nationality, timeframe Daily station management practices Dissemination and use of results Outreach/education activities Tourism
<i>Stakeholder perceptions (dependent variable)</i>	Do researchers meet formal obligations? Is station management responsive to stakeholder concerns? What is the station's contribution to local economy? Do stakeholders know what work goes on at station ("transparency" issues)? Do stakeholders think the research activities are "useful"?

Hypothesis

My hypothesis is that certain institutional structures, both directly and through the proximate variable of station activities, play a key role in creating positive perceptions of the station that, in turn, facilitate its ability to contribute to conservation practice. In my initial hypothesis, I suggest that three factors are of particular importance in engendering this positive feedback: (1) existence of and emphasis placed on formal institutional relationships between the station and government agencies at national and local levels; (2) prominence of Indonesians (both researchers and local employees) in station management and activities, and (3) perception on the part of various stakeholders that the research being conducted is “useful.”

Methods

This study uses a qualitative comparative case study approach to investigate the research questions above. Semi-structured interviews and informal conversations with multiple stakeholders form the basis of data on perceptions, combined with limited participant observation and document review. This study is not an attempt to use questionnaires and statistical analysis to determine perceptions in any quantitative way.

For the Operation Wallacea (OpWall) case study, I visited each field site for two to five days and interviewed a total of 24 people within and outside the organization (see Table 2), as well as speaking informally with various others. I also thoroughly perused the OpWall website and various publications. My interviews and personal observations of activities were limited by the fact that the OpWall field season runs between June and September. During the time of my visit no active research work was being conducted, and neither student program participants nor most non-Indonesian scientists or staff were on site. Time limitations and clashing schedules also prevented me from meeting with some key actors, including the head of KSDA Sultra, bupati staff in either Buton or Wanci, and most local NGO leaders.

Background: The program and the study sites

The Operation Wallacea model: history, objectives, and program design

Operation Wallacea’s research activities in Southeast Sulawesi began in 1995 as marine and avian biological surveys in the Tukang Besi islands and Buton, respectively, by what was then Ecosurveys, Ltd. (led by Dr. Tim Coles). In 1998, the U.K.-based organization – which changed its name to Operation Wallacea soon thereafter – renewed its agreement for five years with the Indonesian non-profit Wallacea Development Institute (WDI, see more below) and LIPI. In 2003, this agreement was renewed for a second five-year period. Although OpWall’s core research focus was the dynamics and diversity of the region’s spectacular coral reefs, the program quickly expanded from pure marine biology to social science with the addition of Kaledupa Island and, in 1999, the adjacent Bajo community of Sampela as sites for student research. Similarly, forest research on Buton, running since 1999, encompasses biodiversity, ecological processes, and community livelihood and economic questions.

In order to accomplish these research objectives, OpWall employs a model self-described as “research tourism”, in which undergraduate (Honours) and occasionally Masters students pay

for the opportunity to conduct research projects under OpWall guidance. These projects are ostensibly designed to fit into the larger research and monitoring program, which is established by Senior Scientists for each site. Student fees allow OpWall to support the presence, during the field season, of an array of researchers from academic institutions who conduct their own work as well as assisting students with thesis projects. The company also allows students to come as “general volunteers” who do not complete their own project but rather rotate between sites experiencing and assisting at each. The OpWall “season” is from June to August, when U.K. students are on university summer break; in each of the past few years, over 200 students have participated. Students may enroll for the site and research field of their choice: marine biology (Hoga, or the dive boat Sama Bahari II), marine social science (Kaledupa or Sampela), or the Buton forest ecology or social science programs.

Today, both the marine and forest sites also have applied conservation projects that are closely affiliated with OpWall, Ltd., but institutionally distinct. Money for these programs is disbursed through the Operation Wallacea Trust, also U.K.-based but with non-profit status. On Buton, OpWall Trust is the implementer behind a US\$1 million GEF-funded initiative called the Lambusango Forest Conservation Program. On Kaledupa, OpWall Trust funded a six-month pilot program in 2005 to assess the viability of a community-based fisheries management project, in association with Indonesia’s Coral Rehabilitation and Management Project (COREMAP). These projects will be further discussed below.

Forest program: Lambusango and Kakenauwe

OpWall’s forest research program focuses on two adjacent protected areas, Lambusango Wildlife Preserve (*Suaka Margasatwa*) and Kakenauwe Nature Reserve (*Cagar Alam*), which Ecosurvey’s original surveys determined to be the most intact and diverse habitat remaining on Buton Island. These two protected areas, which total approximately 28,000ha, are managed as a unit by KSDA. A total of three on-site rangers are responsible for all patrols and enforcement; the provincial headquarters of KSDA are in Kendari, a day’s travel away. These forests contain populations of unique Sulawesi flora and fauna like the tarsier, dwarf cuscus, and highly endangered anoa, and harbor high bird and butterfly diversity among other taxa. Moreover, while smallholder encroachment, illegal logging, and asphalt mining threaten the forest’s intactness, Buton has yet to see any large-scale commercial logging or agricultural plantations.

Research facilities: Labundo-bundo: Forest research operations are based in the village of Labundo-bundo, where a set of buildings including the KSDA ranger post serve as offices, computer lab, and sample lab. A separate building in the middle of the village hosts the dining and meeting hall and first aid facilities. Student volunteers sleep in villagers’ houses; approximately 21 families currently offer host facilities (there are certain minimum standards for mandi and bedrooms). Research staffpersons stay at the former Kepala Desa’s home while logistical staffpersons sleep in a separate building.

Within the Lambusango-Kakenauwe forest complex, there are six “node camps” for overnighting in the field; these are set up during the season with hammocks, tents, field toilets, and bathing in a nearby stream or waterfall. Trees are cut down each year to re-make the camp structures.

A number of trails lace the forests for moving between camps or doing transects. There are also two one km square study grids with transects every 100m; one close to Labundo-bundo and another two hours away.

Marine program: Wakatobi National Park

When Operation Wallacea first came to the region historically known as the Tukang Besi islands, renowned for its coral diversity and rich fisheries, there was not yet a national park. In 1996, under pressure from conservation groups including OpWall concerned about unsustainable fishing practices, the government created a 1.39 million hectare marine park encompassing the cluster of WAnci, KAledula, TOMEA, and BImongko islands, with a population of some 88,000 people. Government management falls to the Balai Taman Nasional (National Park Office), which has been located hours away in Bau Bau since its founding, but plans to move to Wanci in the coming year as the region becomes its own *kabupaten*. This new political configuration will have major repercussions for the park's management, given the potentially conflicting mandates of a kabupaten (increase district revenues) and a national park (sustainable use and protect resources).

The best-funded initiative in Wakatobi is a joint program between The Nature Conservancy, WWF-Indonesia, and the BTN, which focuses on (a) enforcing regulations such as reef bombing and cyanide bans, and (b) developing a zoned management plan for the park. COREMAP is another major country-wide initiative whose scope includes Wakatobi. Kaledupa island itself – the “Kaledupa Stakeholder Area” – was chosen as a focus of COREMAP efforts to monitor changes in biological and social systems associated with the “unique form of community management for the reefs” apparently being introduced to the Stakeholder Area.

Marine site research facilities: Hoga/Kaledupa/Sampela

OpWall research in Wakatobi is conducted at three locations, within sight of one another across a 20-minute boat ride but worlds apart. The sites are about 9 hours by water from Bau Bau, and 1-2 hours from the new kabupaten capital at Wanci.

- *Hoga* is the original and largest OpWall site, where all marine biology research is based. A coral atoll covered by scrub forest, largely uninhabited except by three smallish tourism operations (OpWall's being the biggest) and a cluster of Kaledupan inhabitants, the island is ringed by a gorgeous reef wall. When the company began its operations in 1996, it made an agreement with the local government (kabupaten and kecamatan levels) to rent and improve a pre-existing facility, built with World Bank money for tourism but standing empty. This large hall complex has a small library, study rooms, a bar, and offices; along with a few outlying buildings for diving equipment, laboratories, and staff quarters, it forms the Hoga Research Center. Student volunteers sleep in “homestays”, which are unoccupied huts built by local villagers living across the way in Kaledupa. These huts each house two students and are built close together on a set of trails next to the Center; solid waste is drained into the porous coral ground below. Water must be brought over from Kaledupa.
- *Kaledupa* is the major inhabited island in the area, with approximately 12,000 people and 17 villages. OpWall's research operations are based in the town of Ambeua, just across the water from Hoga, where the company has improved the town's community hall to provide eating and study facilities for those students who conduct social science research on the island. Students sleep in local homes, and travel around the island to conduct interviews with the help of translators and motorbikes (most Kaledupans speak some Indonesian as well as their local language).

- *Sampela* is a Bajo village of approximately 1000 people. An ethnic group whose livelihoods and cultural practices are centered completely on the sea, the Bajo have settled into villages (both in Southeast Sulawesi and elsewhere in Asia) only in the past century. Homes are built on stilts in the tidal flats off the Kaledupa shore, and around these stilts people proceed to pile up layer upon layer of coral rock into solid bases. Movement around the village is via elevated plank walkways or canoes. In *Sampela*, OpWall works through a local organization called Yayasan Bajo Matilla (YBM), which has used their funding to build a small office/library, 'private' rooms for students, and a small meeting area for informal gatherings or presentations. No more than 12 students are stationed at *Sampela* in any season, although there are often more than 12 students around visiting from other sites for a day or two's experience. Translating is particularly complicated at this site because many Bajo speak very little Indonesian.

Results: Program Relationships, Activities, and Perceptions

A. Operation Wallacea's formal and informal institutional relationships

Wallacea Development Institute (WDI)

One of OpWall's key institutional relationships has been with the Wallacea Development Institute (Badan Pengembangan Wallacea), a non-profit organization founded in 1992 by two powerful Sulawesi-born political figures of the Suharto era, Prof. Dr. Ibnu Sutowo and Prof. Dr. B.J. Habibie. WDI's work focuses on biodiversity conservation in the region, and it has forged MOUs with several foreign institutions including The London Natural History Museum, the Durrell Institute of Conservation and Ecology, the Royal Society of London, Glaxo R&D, Ltd, and OpWall, Ltd. WDI's sponsorship of OpWall began in 1995, when Ecosurveys Ltd. came on board with LIPI and the Directorate General of Forest Protection (PHPA) to conduct the aforementioned three-year pilot biodiversity survey called Operation Wallacea; the MOU has been renewed and extended twice since then. In return for being the program's official sponsor, OpWall pays a fee (assessed per student participant) each year to WDI.

PHKA (Perlindungan Hutan dan Konservasi Alam)

While neither OpWall, Ltd. nor OpWall Trust itself has a formal MOU with the Ministry of Forestry's Forest Conservation and Protected Areas Directorate (PHKA, formerly PHPA), its sponsor WDI has one on the company's behalf. This MOU was created in 1997 in preparation for the second phase of OpWall's research/tourism activities.

LIPI

As it had done with PHKA, in 1997 WDI signed a Memorandum of Understanding with LIPI on behalf of OpWall. LIPI Jakarta appointed two Java-based government institutions as official scientific counterparts: the Department of Oceanology at Ancol, and the Center for Biology Research and Development at Bogor (PPPB). However, the regional counterpart institutions are Haluolao University (UnHalu) in Kendari, and Hasanuddin University (UnHas) in Makassar. UnHalu's biology department therefore sends staff into the field to act as scientific counterparts for the terrestrial component of the research (and, in the past, the marine as well), while UnHas is

now responsible for marine counterpart duties – that is, to work with the foreign scientists as well as to monitor OpWall’s field conduct. Each year LIPI Jakarta still must sign off on the program’s science plan.

Wakatobi National Park

Although Wakatobi National Park falls under the purview of PHKA, OpWall also has a formal 5-year agreement directly with the Balai Taman Nasional (BTN, National Park Office). Under this agreement, the head of the park signs off on an annual work plan, and activities like ranger trainings might be conducted. In lieu of standard park entrance fees, OpWall pays for patrol boat fuel purchases during the research season. In the field, no national park staff members stay on Hoga during the research season, but there is a post in nearby Ambeua. Park rangers and technicians periodically accompany student research groups on dive trips in an attempt to monitor activities; their expectation of “pocket money” (*uang saku*) from OpWall for this accompaniment is a minor source of tension. However, overall, the informal relationship appears to be mutually amicable, in contrast to other sites in this study. OpWall has financially and logistically supported the park office and its director with training, enforcement, and travel activities, and has generated a good deal of positive publicity about this new national park (including, for example, the 2000 British Airways Tourism for Tomorrow Award for “Best Project in a National Park,” for whose ceremony the company flew the director to London).

KSDA Sulawesi Tenggara

The Directorate of Natural Resource Conservation (KSDA), whose provincial office is in Kendari, is the management authority over Lambusango and Kakenauwe forests. Other than a per-person SIMAKSI entrance permit payment that OpWall is required to make to this office, there is no formal MOU or written agreement between OpWall and KSDA, as far as I could discern, and relations with the provincial-level KSDA office are said to be sometimes problematic. However, the institutions are closely linked on a local level: OpWall’s offices are in or next to the three-employee KSDA building at Labundo-bundo; OpWall financially supports certain KSDA activities like boundary marking, patrolling, and office upkeep; and KSDA employees occasionally accompany student groups into the field to monitor research activities and ensure that students do not take away small samples without proper permits. As on Hoga, there is “pocket money” for these accompaniments.

Local government: Province and kabupaten

While OpWall, Ltd. has no overarching MOU with the provincial or kabupaten governments in its study areas, the company has a variety of mechanisms and agreements, both informal and formal, to facilitate smooth relations. Central to these relations is the hiring of staff members whom OpWall pays specifically to conduct official errands during the field season. Among the salient points vis-à-vis local government relations:

- Official liaisons: During the field season, a Bau Bau-based manager is responsible for official requirements like reporting all researchers and students to district police and other authorities. Field staff in Labundo-bundo and Kaledupa are also assigned to be liaisons with the bupati, camat, and local police.
- Taxes and other payments: OpWall has paid a yearly tourism tax to the kabupaten Tourism offices in Wanci and Buton; the total is calculated based on how many students and staff come and for how long. These taxes represent the primary financial contribution

of the company to the local government, since OpWall does not give any sort of additional annual donation. The company also rents the main Hoga facility from the government (provincial?), and contributes certain in-kind payments of mutual benefit (such as fixing up the Ambeua meeting house, which it uses for students during the season but technically allows the community to use at other times).

- OpWall hosts periodic *sosialisasi* events to present and publicize its activities to government officials, local media, and other parties (see Dissemination section below).

The configuration of local government entities is shifting quickly: in the past 3 years, Buton Island, once a single kabupaten, has been broken into four kabupatens. The Lambusango-Kakenauwe area is now part of Buton kabupaten, whose administrative center is no longer Bau Bau but Pasarwajo, a town 45 minutes further away. The Wakatobi island area, meanwhile, has become a separate kabupaten with boundaries almost coincident with the national park. These administrative changes mean the creation of new agencies and power centers, and will doubtless have consequences for the taxes and payments the company must make.

Communities (Desa, Lurah, Dusun)

OpWall is well-known, if not always fully understood, by the communities near its study sites on Buton and Wakatobi. Villagers' relations with the company are structured largely by employment, interviews, and informal interactions.

- *Employment*: In Labundo-bundo, it was estimated to me that up to 50% of the village has been employed in some capacity by OpWall through the years: as porters, guides, cooks, or homestay providers, among other jobs. At the marine site, Hoga alone has close to 40 staff during the research season. Another large group of families owns the close-to-100 homestay buildings on Hoga for which they are paid per night. Shopping costs for food, fuel, and other locally purchased items amount to tens of thousands of dollars yearly entering the Kaledupa economy – although, clearly, shopping income is highly concentrated into a few owners' hands.
- *Interviews*: In many villages on Kaledupa, near Labundo-bundo, and in Sampela, almost every household has probably been asked to participate in research interviews at some point. These interviews are typically about household economy, livelihood activities such as fishing or farming, or perceptions of nature and conservation. In return for peoples' time, OpWall pays a fee per interview (Rp 10,000). This fee has been a source of contention. One year, OpWall paid fees as a lump sum at the end of the season directly to the village head (*kepala desa*) in each village where interviews had been done; this led to suspicion of several kepala desa and frustration on the part of the individuals who had actually been interviewed. This past year, the money was paid to each kepala desa in public ceremonies, with the intent that it would be distributed directly to individuals interviewed.
- *Informal interactions*: Although OpWall makes no direct donations to the local desa coffer, the company does have a small budget (augmented by donations from students) for community expenses like mosque fixing or t-shirts for soccer teams. Each year they fund an Independence Day (Aug 17) party at both sites. Daily informal interaction between residents and students or researchers varies greatly: at Hoga, there is very little casual interaction beyond a weekly soccer game in Ambeua, since no locals except staff are resident on the island. For students living at Ambeua, Sampela, and Labundo-bundo, interaction is much more regular.

- *Sampela*: The Bajo community of Sampela represents a somewhat different arrangement. In Sampela, 50% of revenues from OpWall go directly to the Kepala Desa for community projects like raised walkways, a mosque, and school building; while the other 50% go to the Yayasan Bajo Matilla for program expenses and projects. There is also a yearly 12 million rupiah payment to the community for its maintenance of the “No Fishing Zone” in front of Hoga island. Students here also pay interviewees directly.
- *Overall inflows to communities*: Although I was not able to obtain figures for how much money comes into Buton or Kaledupa during an OpWall season, the estimate is clearly in the tens of thousands of dollars. Much of this money goes into purchasing food, fuel, and other supplies from local vendors, ending up in a fairly small number of hands. Other large chunks go into wages and homestay fees, which are somewhat more dispersed.

Homestay owners

Forest program: There are 21 homes that are part of the Labundo-bundo homestay program. Families who host students are expected to have a minimum standard for bathing/toilet facilities, bedrooms, and beds, but do not have to cook because students eat communally. The rate is Rp. 35,000/night (whether one or two students stay in the home).

Hoga: What began as an agreement with “a few families” in 2001 to provide housing on the island has mushroomed, with little planning or control, into a cluster of almost 150 so-called homestays. (These are huts built by locals who live on Kaledupa, each with two private sleeping quarters and a shared privy). There are not enough students to occupy each homestay through the season, so some huts go empty each year, which has fueled resentment among owners and suggestions that the Hoga camp manager is biased.

Universities

As noted above, OpWall has counterpart relationships with Universitas Haluoleo and Universitas Hasannudin. UnHalu, according to sources at the university, has sent one docent to the forest program and, until UnHas took over the task in the past year or two, one docent to the marine program in this capacity. These docents chiefly participate in existing activities and cross-check the annual LIPI reports prepared by OpWall’s head scientists, rather than conducting independent research. There is no formal MOU with UnHalu, and no regular inclusion of UnHalu students in OpWall activities, although the university expresses interest in both.

In keeping with Indonesia’s increasing emphasis on “regional autonomy” and capacity, OpWall is in the process of signing an MOU with UnHas, as the strongest “local” university on Sulawesi, to bring a limited number of Butonese marine biology and forestry students into research activities. However, as one interviewee expressed it, “Makassar might as well be Bali” rather than a “local” university, since the university is not in Sulawesi Tenggara province.

OpWall has almost no interaction with students or faculty of the private university in Bau Bau, Universitas Dayanu Ikhsanuddin. UniDayan has no biology department, but it does have fisheries and social science programs. A professor there expresses that a stronger relationship is “greatly hoped for” (*sangat disayangkan*).

NGOs (LSMs) and other programs

Due to schedule constraints, I had unfortunately little time to interact with local civil society. Thus, while I heard many hints that there are NGOs in Bau Bau and Kendari who critique

OpWall's activities, I was not able to ascertain the level and content of this discontent for myself.

Other relationships of note:

- The Nature Conservancy and WWF have a joint program with BTN Wakatobi, with substantial funding and an office in Wanci. There is no formal relationship between this program and OpWall, although there is some data sharing and rental of the Hoga facility during the off-season.
- Folkani is a relatively young organization of community leaders on Kaledupa that has become involved in facilitating OpWall Trust's pilot fisheries project with several villages.
- At Sampela, Yayasan Bajo Matilla is a key facilitator of OpWall's activities. YBM was created in the 1990s by several Bajo individuals from outside Sampela along with Chris Majors, an Australian who is now an OpWall staff scientist. The organization played an important role in gaining Sampela's political autonomy as its own desa, reducing the discrimination and intimidation to which the Bajo had been subjected by the Kaledupan authorities.

Operation Wallacea Trust

Operation Wallacea Trust is the non-profit institutional entity that funds and administers several projects linked to community development or participatory conservation in the areas where OpWall's research is done. The two most notable such programs are as follows:

- Lambusango Forest Management Program, a three-year Global Environmental Facility-funded \$1 million initiative to promote sustainable conservation management in the Lambusango-Kakenauwe forest complex. This project, which began in spring 2005, has its own staff, office, and separate MOUs with PHKA, Dinas Kehutanan, and the kabupaten government, among others. Among the project's primary activities are: establishing a district-wide participatory management structure for the Lambusango forest; facilitating community income projects like small-scale forestry and intensive agriculture; building enforcement capacity; increasing local environmental awareness; and developing an "intensive biological and social assessment programme." Close to 30% of the program's budget is for OpWall research activities, including funding for three PhD students whose research will monitor ecological indicators over the project's short timeframe.
- The Kaledupa fisheries management pilot project, with funding from COREMAP. In 2005, OpWall Trust organized an initial study, led by two British fisheries biologists, which began with work in four villages to assess the viability of implementing a community-based fisheries monitoring scheme. The project has worked closely with Folkani, a relatively new civil society organization on the island with representatives from each desa; this alliance has, according to the project leaders, greatly facilitated effective relations with the communities. If this project continues to receive funding, it plans eventually to expand the community monitoring model to other communities around Kaledupa. This pilot project is presumably what is referred to on the website in the following way:

The Marine Research Centre is also based within an area (Kaledupa Stakeholder Area) which is carrying out a unique form of community based management for the reefs. Operation Wallacea has been active in developing and implementing this management strategy, which is now supported by the COREMAP Phase 2 funding programme.

B. Program activities

Guiding research agenda and research activities

At both the forest and marine sites, the overall research agenda is set by the respective Senior Scientist in consultation with Dr. Coles and other OpWall researchers, and subsequently approved by LIPI. In principle, research is oriented towards addressing management and monitoring needs as well as fitting into the broader international scientific agenda – that is, both what’s useful and what’s publishable, with consideration for what is feasible given the short season and students’ capabilities and academic requirements. Effort is also made to build on research done in previous years.

- *Hoga marine and social science research program:* OpWall currently works within a program developed for the period 2004-2008, which consists of a variety of activities within nine principal research themes (see Table 3). According to website materials, each of these activities is coordinated by a lead scientist who pulls together projects and data from dissertation students, general volunteers, and other academics. Each activity, moreover, is correlated to a management objective^[MSOffice4] towards which its data and results are ostensibly directed for implementation. The web materials clearly lay out the relationship between research themes, management objectives, and research activities, so that interested students can click on each activity to read a description of the projects in which they could get involved. In this way, students choose dissertation topics within Opwall’s larger program.

According to the website, the Hoga program is highly integrated into COREMAP management activities for the Kaledupa Stakeholder Area:

COREMAP is the largest coral reef management programme in the world and the management approaches being used within the Kaledupa Stakeholder Area are being tested as the basis for introduction to many other areas of coastal reefs in Indonesia. A large proportion of the science programme is therefore targetted at producing data on social changes in the communities or biological changes on the reefs as the management programme is introduced and begins to take effect.

Standardized monitoring was instituted in 2002 with the establishment of 108 permanent transects at 12 stations around Kaledupa. According to web materials, LIPI scientists are primarily responsible for their monitoring.

- *Labundo-bundo forest and social science research program:* Just as at Hoga, Labundo-bundo’s current agenda is designed to link with the GEF-funded three-year Lambusango management program – specifically, to “assess the success/failure” of the GEF program’s six objectives. Three Indonesian PhD students have been assigned to oversee the biological aspects of this monitoring (Objectives 3-6), and student volunteers can use web links to choose among the various research projects under each objective within the framework. There are also other dissertation possibilities “examining basic ecological processes” that are not specifically linked to the GEF project.

Monitoring of socio-economic objectives (Objectives 1-3) in the GEF project are being overseen by “an Indonesian team of social scientists and economists” who will conduct annual surveys for data such as household income, law awareness and enforcement. Student volunteers can join these teams as well. (See Table 3 for the list of objectives and associated research questions.)

Composition of researchers

Both in perception and in reality, OpWall “researchers” are essentially all foreign (primarily British students; supervising scientists are more diverse in their country of origin). Twelve UnHalu students joined the forest program activities this past year, and there is an Indonesian docent as scientific counterpart at both Labundo-bundo and Hoga. Management of the sites is carried out by a mixture of Indonesians and foreigners: both Head Scientists and the dive operators are foreign, while general year-round management at Hoga and Kaledupa is done by resident Indonesians.

Dissemination of results

There are several types of and audiences for dissemination of information regarding the conduct and results of OpWall’s research activities. Within most Indonesian contexts (that is, local, official, or media audiences), OpWall’s dissemination in Bahasa Indonesia is quite limited.

- *Local community stakeholders:* There is almost universal acknowledgement that results are not disseminated back to community members or desa officials. Students do present the results of their work in public at the end of the season, but these presentations are oriented towards the volunteers and scientists and are conducted in English. There are no regularly translated summaries of ecological or social science results, either written or oral, available to communities.
- *Government/regional stakeholders:* For several years running, OpWall has held yearly *sosialisasi* events in Bau Bau, both prior to and after the field season. These so-called “open house” events are hosted by the National Park Office, and the invite list includes local government (kabupaten-level), newspapers (*Kendari Pos*), NGOs, and university affiliates. These events serve as venues for publicizing program activities in a transparent manner as much as for disseminating research results. The Head Scientists have also, on occasion, done presentations at UnHalu.
- *Official reports:* Each year, the Head Scientists prepare a report summarizing all research activities for LIPI; this report is written in English and vetted by regional counterparts. These reports, which typically represent temporary documents prior to full data analysis, are also submitted to the park office and KSDA. Students are also requested to send their final dissertations back to OpWall contacts within one year. The rate of return for dissertations is approximately 80% for students who worked at Sampela, perhaps somewhat less at other sites according to staff estimates.
- *International scientific media:* Given the pace of academic publishing, it is notable that there are already a number of articles in peer-reviewed scientific journals based on work done through OpWall. I have been unable to arrive at a figure, but some of these articles are also linked to the Opwall website.
- *International public:* The English-language Operation Wallacea website is an excellent resource for learning about the program’s objectives, context, and research tourism opportunities. It also has a long list of dissertations and reports in preparation, however many of these do not yet link to actual findings.

C. Peoples' Perceptions

In this section, I review a variety of comments and perceptions heard from the people I interviewed regarding OpWall's presence, programs, and relationships with various stakeholders. These perceptions are not the result of quantitative sampling; rather, they represent the views of key informants involved in some capacity with OpWall. I am aware that, given my limited timeframe and status as an outsider, I may not always have received completely frank responses. In almost all cases I have synthesized comments heard from at least a few different informants into generalized points, rather than list every opinion given to me over the course of my interviews.

Perceptions: Forest Program

- *Villagers and community leaders:*

"Kalau cari yg murni, memang, tidak ada. Kita cuma berharap ada lebih banyak bagus dari jelek. Dan OpWall disini lebih banyak bagus dari jelek." - Labundo-bundo resident

OpWall's program is, overall, perceived to have quite positive effects in Labundo-bundo. Interviewees specifically mentioned the additional jobs and cash income brought by the project during the research season, and English language skills picked up by some of the village's young men. One person mentioned that the program's regimented schedule and work ethic had introduced an attitude of "discipline" that he felt had begun to take hold among some villagers. It was consistently remarked that OpWall created "added value" ("*nilai tambah*") for the standing forest (as opposed to its timber) among local people.

Not surprisingly, the influx of money to Labundo-bundo does create a certain amount of social jealousy among nearby villages, as well as division among community leaders. For example, in the neighboring village of Toruku, the kepala dusun does not permit students to do socio-economic survey interviews anymore. Within Labundo-bundo itself, there appears to be some tension between the past and current kepala desa; the past leader has a strong relationship with OpWall, and continues to be employed as a local liaison, while the current leader is not entirely satisfied with the amount of money the program contributes to his government. He wanted to institute a \$1/visitor fee paid to the desa's communal fund; however, there are divisions in the community as to how this money would actually be used (i.e. personal vs. village use).

There appears to be some level of discontent among nearby villages about the dynamics of the socio-economic research. I was told that some people wish OpWall's students would be more respectful of farmers' time in setting up the interviews. Moreover, after repeated years of similar questions, villagers have never seen or heard "results" from the research. While the GEF project may ameliorate this sense, it was felt that OpWall should make a greater effort to disseminate findings in a format and language that local leaders can understand and communicate to their constituency.

Finally, the relationship between OpWall, Ltd.'s activities and the GEF LFMP project is not entirely clear; GEF staff don't make a great effort to distinguish between them, and it was my sense that most people consider these programs to be under the same umbrella – which may or may not be for the best, as I shall discuss below.

- *KSDA:* Given the local KSDA office's severely limited financial and personnel resources for managing the Lambusango-Kakenauwe forest complex, it is not surprising that staff here emphasized OpWall's ability to contribute to forest protection. The presence of OpWall

researchers and facilities in the forest, they stated, helps prevent more illegal logging and poaching from occurring, while the program also serves to build local awareness regarding conservation and benefits of standing forest. Moreover, OpWall contributes some funds directly to KSDA patrolling and maintenance activities, and provides limited training and learning opportunities for staff.

- *General:* There were some questions raised about OpWall's relative contribution to forest conservation. One former participant noted that a significant number of trees are cut down each year to make research camps, "and they haven't planted a single tree." Whether or not there is ecological merit to this argument, it speaks to a sense of disillusionment that some people evidently feel with a program many of whose 'volunteers' sign on in part because they wish to be part of a tropical conservation effort. There are some who find a disconnect between the publicity materials and actual in-field emphasis.

Perceptions: Marine Program

Almost everyone interviewed expressed a fundamentally positive perception of OpWall's presence in the Kaledupa area, even while offering a variety of critiques and suggestions for improvement.

- *Tourism promotion:* Local government officials acknowledged OpWall's program as a key player in promoting and spreading awareness of Hoga as a tourism destination for diving and coral reef tourism. The company's efforts are also spreading awareness of the relatively new Wakatobi National Park.
- *Capacity building:* Officials and program employees credited OpWall with good capacity building of its staff, who receive diving training and gain some English language skills. That said, other people felt that if OpWall were truly building for the future, it should put effort into funding or conducting educational activities among the local population: "OpWall doesn't have capacity building here because there's no planning for the future. What if they gave swimming classes to kids? Or environmental programs, field trips...people here would be very happy if there were links with the educational system." Moreover, some observers noted that the program could do much more to build the skills and knowledge of national park staff, Fisheries agency staff, and university students or faculty, given the relevance of OpWall's expertise in monitoring and research activities to these institutions.
- *Interactions with local people:* While the so-called "tourists" (as all OpWall participants are called) living in Ambeua and Sampela have regular interactions with local people through daily life as well as their interviews, participants in Hoga are far more isolated. Local people definitely consider Hoga to be an enclave of foreigners, where interactions by and large are limited to employment or homestay issues. I think it important to note that this divide between Hoga and the mainland or Sampela reflects a larger gap within OpWall's program between "social" and "natural" scientists and topics.

Also, one village leader asked why students only stayed in Ambeua, even when they were conducting interviews in other villages; local people, he noted, would be happy and would develop a greater sense of connection to student researchers if these foreigners could spend a few days living in the village.

- *Environmental impacts:* A few people registered concerns over the environmental impacts of the Hoga program. The rapid increase in homestay buildings near the shoreline has caused concern both about the island's scenic appearance, and about its water quality and waste management. Is there pollution going into the ocean and coral because of the high human density using the OpWall facility in June-Aug? One official suggested that everyone stay on Kaledupa and maintain Hoga as a natural island, although this would entail greater expenditures of scarce, expensive, and polluting gasoline in the waters between the two islands.
- *Homestays:* The issue of the Hoga homestays is the most consistent source of tension between OpWall and local people. Although the company never made promises about the number of students who would come or the number of homestays that would be used each season, there may nonetheless be an underlying sentiment on the part of homestay owners that expectations were created and not met. Moreover, the current Hoga manager's informal system for determining which buildings will be occupied each season has generated, fairly or not, perceptions of bias and partiality.
- *Interviews:* Another source of some local discontent that has surfaced towards OpWall concerns payments for the social science interviews. The agreed-upon fee (though no written agreement exists) is currently Rp10,000 per household interview. A previous attempt (2004) to recompense on a village level through lump payments to village heads resulted in suspicion in at least some villages about where the money had gone. Fishermen complained that while they were the segment of the village population targeted for most interviews, the recompensation was either on a village-wide basis or didn't reach them at all. This past year (2005), I am told that payments were made again through the village head, but with an emphasis on public giving ceremonies and an understanding that the money would be distributed individually to households who had been interviewed. In my interviews, village heads expressed their hope that in the future, OpWall would simply pay people directly after an interview; this is how payments are done in Sampela. (That said, there are other lump payments to the Yayasan Bajo Matilla that some people in Sampela have questioned.)
Interestingly, it did not seem that village heads were particularly preoccupied with getting reports/results of interviews back from the students or OpWall. While they agreed that it would be nice to receive Indonesian-language reports, this concern took a back seat to a clear payment system. This may reflect the essentially commodified way in which the interaction is viewed: research is seen as a transaction, information for payment, with little expectation on villages' part that there is utility for them in the information gathered.
- *Local authorities' wishes:* Unlike officials at the village level, the kecamatan authorities were interested in results. Just as in Labundo-bundo, local authorities expressed desire for more reports and a general publication in Bahasa Indonesia with clear presentation of some of OpWall's activities and results. They noted that this would help provide them with data to develop proposals and reports to their own higher-ups. I also heard a hope for "further steps" (*tindak kelanjutan*) – for OpWall to act on all the research it's done over the years. Few people, however, were able to offer a clear vision of what these steps might look like.

- *Civil society*: While I heard rumors of OpWall being criticized in Kendari and Bau Bau by local LSMs – including groups’ support of a newspaper-published rumor that the company had sponsored installation of a “cable” around Kaledupa for unclear reasons – the reality is that this region still has limited civil society activity. Thus OpWall has yet to be a serious target of NGO pressure, whether for better or for worse. It has also not developed any particularly strong alliances with other groups, including WWF and TNC. On Kaledupa itself, OpWall Trust is actively engaged with Folkani, a group of representative community leaders that is one of Kaledupa’s few LSM-type organizations.

Perceptions regarding feedback between research and management

As I described above, OpWall’s guiding research agenda is ostensibly oriented directly towards biological and socio-economic management objectives. To what extent, then, is the research done by OpWall scientists and volunteers *perceived* to be relevant to or utilized for ecological management and/or local socioeconomic development? This is a complicated question without one answer. For example, the head of Wakatobi National Park stated that Wallacea’s investigations were helpful in rounding out the agency’s database. He felt that OpWall consulted with him in developing its yearly basic research plan, and that he was successfully able to direct research to be “not for science only, but for the field as well.” Beyond providing information on marine biodiversity, however, there are few clear examples of how research results are currently translated into park management. (This is, of course, not a dynamic limited to Wakatobi; in most Indonesian parks, indeed, active resource management takes a back seat to basic enforcement issues.)

Feedback is even more nebulous for the social science research. Several local employees and authorities stated that OpWall’s research is designed principally to benefit the students who pay to conduct it. Student topics, in their perception, are not contiguous with local community desires, priorities, and planning, but rather more with the categories and themes of an international academic community. In order for the program’s investigations to have greater consequence for *local* needs, OpWall would need to work more closely with government agencies and local leaders to design topics. This, clearly, is not a responsibility to be placed solely on OpWall’s shoulders – interviewees felt that the local government bears a burden to capitalize on OpWall’s presence through coordinating on data collection and possibly projects. Instead, currently, government does not follow-up even when the program does present its data to them. “Things just get filed away,” said one person.

It is difficult to reconcile these perceptions with OpWall’s formal research agenda, which has been carefully structured to correlate to management objectives (in the forest program’s case, to GEF project objectives; in the marine program’s case, to XX objectives_[MSOffice5]). To a certain extent, this gap probably speaks to a disparity between local actors’ and management organizations’ perceptions of what is “useful”: data being collected on coral or fisheries status is more likely to serve as future baseline data for managers like COREMAP or a conservation project, while local government may not see much direct utility for it. I was not able to speak directly with any COREMAP actors, so I have no direct data regarding this program’s perceptions of feedback, but it seems as though this relationship is still in its infancy [despite what the website led me to believe_[MSOffice6]]. With regard to the forest site, it was my own perception that GEF project staff did not see the student research as an integrated component of their activities that would provide useful data to assist in implementation. I would question

whether (a) the short timeframe for the GEF project allows for meaningful monitoring data, particularly with respect to biological indicators; and, (b) whether the substantial budget for research may reflect OpWall's other scientific priorities more than it reflects efficient conservation project design. Without doubt, if done right there are dissertation topics that can and should be integrated into the GEF implementation; this, however, will require extensive coordination and greater clarity between GEF manager/staff and OpWall Ltd.

Fundamentally, there are limitations to the ability of a program with OpWall's design to be relevant and create a loop of feedback in research and application. Perhaps the most significant limitation is the program's seasonality: with only 2-3 months of active research in a year, and a new crop of inexperienced 'volunteer' researchers each time, in-depth investigations are difficult to design and conduct. The language barrier faced by social science researchers further hampers the program's ability both to get good data and to seek feedback in meaningful ways from local people or authorities. Moreover, seeking feedback and conducting joint priority setting is a time-consuming process that requires time and personnel beyond the short season – and even more time-consuming and difficult if the company truly takes social dynamics into account. A large group meeting is not the best way to seek local peoples' opinions on research results or priorities – it is a power laden setting in which only a few elite, largely male community members are likely to speak. To solicit more nuanced and complete feedback, OpWall would need to be engaged in more intimate encounters with individual households, fishermen, and farmers dispersed across its study sites.

Perhaps for these sorts of reasons, a number of people suggested (either explicitly or implicitly) that it was more productive to think of OpWall's research and OpWall's "contribution" or "usefulness" as separate activities. Let research continue to be oriented towards student volunteers' and scientists' academic publishing priorities, while emphasizing capacity building, or educational programs, or funding for local projects, as a way for the company to meet the expectations that its presence engenders. In Sampela, for example, the payments that OpWall makes to YBM go to community projects like building walkways or a mosque, projects that contribute in a more direct sense than student dissertations on Bajo perceptions of ocean resource conservation. In a sense, OpWall's current expansion into activities like the GEF forest management project or the fisheries pilot study can be thought of as a way to both separate *and* connect research projects with applied conservation and community development activities. The division between the Ltd. and Trust sides of the operation reflects these dual sets of objectives.

Some discussion and some conclusions

A. Structuring perceptions

The following points represent my own evaluation, based on stakeholder perceptions and personal observation, of some of the principle factors that structure OpWall's role and relationships within its study region.

- OpWall's program model walks a *fine line between business and research*, a line that different stakeholders perceive to be drawn with different contours. While website materials emphasize applied research and conservation impact, it is unclear to diverse people

(including volunteers, staff, observers) to what extent the research conducted is utilized – and conversely clear that the program must cater to the need for paying volunteers to complete projects for their dissertations as well as have a satisfying travel experience. This intertwining of for-profit and non-profit objectives is precisely the program's strength and weak point: even as it generates consistent funding for research, this research is constrained by the needs of "donor" volunteers. Further, this model leads to confused or conflicting expectations on the part of stakeholders. What should be expected of OpWall? Community development? Large conservation programs? Village donations? What sort of taxes and government permits? The answers differ whether it is perceived as an NGO, or a company, or a research institution.

- Large influxes of money – or even the perception of such – inevitably generate tensions and expectations; knowing this, it behooves OpWall, a dominant institutional presence at both of its sites, to consider how to minimize them. Sometimes this can be done through simple payments (such as the personal stipend that made Labundo-bundo's current village head much happier with the program in 2005), but cash solutions can also exacerbate the issue. *Expectations are something that the company needs to acknowledge and take seriously* – both in considering its responsibilities to the places it works, and in considering the potential for conflict if expectations are built and not met. The perception of unmet promises is difficult to avoid in this sort of situation, and has the potential to create major issues down the line. OpWall needs to develop more of a long-term plan for maintaining mutually beneficial relationships with local actors if it plans to stay active at its sites. This doesn't mean dropping cash bombs on tiny villages, but communicating (publicly) about reasonable expectations and investing in meeting them.
- Despite this confusion, I hope it will not sound contradictory to say that there seems to be *a broad acceptance of the program's basic objectives*. This observation is best understood in contrast to other research sites included in this comparative study, at which stakeholders (villagers and even officials) voiced latent suspicions that so-called researchers were actually pirating valuable resources, planting bombs, or taking control of Indonesian territory. These suspicions less common for OpWall, perhaps precisely because the for-profit "tourism" goals of the project make more sense to local stakeholders than do the intangible goals of academic research. In the same vein, complaints that the research is not "useful" (to anyone except the Western students) are less plangent because the tangible financial benefits of the program are more significant than at other smaller-scale research sites.
- Given OpWall's multiple objectives, relatively large scale of operations, and foreign origins, the program's *ability to communicate clearly with other actors is crucial* to its maintaining positive relationships. In this regard, OpWall is doing some things very well and some things need improvement. Cultivating and supporting local Indonesian mediators – such as the managers at Hoga (Udin) and Kaledupa (La Mane), the former village head at Labundo-bundo (La Aete), or the Yayasan Bajo Matilla (including Andar and Chris Majors, whose unique role as cultural translator seems to have been invaluable to the Sampela program) – is indispensable. However, the program to now has placed too little emphasis on maintaining relationships in the off-season through having permanent staff to liaise with local government or civil society and to disseminate project information and results.

B. Program strengths and points for improvement

Strengths: OpWall's program is, by most accounts, overwhelmingly positive for its student participants on academic and personal levels. Moreover, it provides the framework for a cross-cultural encounter that is eye-opening and enjoyable for both Westerners and Indonesians. Most peoples commented that the students were quite well-behaved and respectful, a dynamic for which the program's management deserves great credit. (Even the website materials emphasize the importance of cultural sensitivity in dress, consumption, and gender relationships.) These students' fees are able to sponsor the work of a variety of more-experienced scientists whose research is beginning to reach an international scientific audience.

OpWall's simple presence – physical, economic, and symbolic – at both the forest and marine study sites is among the most important contributions it has made so far to regional conservation. The “added value” that its research tourism brings to the standing forest and coral reefs; raised levels of awareness about natural resource scarcity among local people, engendered by interviews and discussions; and the additional enforcement that's both funded by OpWall and a consequence of researchers' presence, are direct conservation impacts.

OpWall's website is also an excellent resource. In its current form it is most useful for prospective participants, but with a more regular updating, this site could provide a clearing house for huge amounts of data.

Weaknesses: OpWall's efforts to build Indonesian scientific capacity, with either government agencies or university programs, have been lackluster at best. This may be due in part to financial considerations, but it is a lost opportunity both for foreign volunteers and scientists (who would learn from connecting with in-country professionals and student counterparts) and, clearly, for the Indonesian conservation and academic community. The GEF project includes some funding for Indonesian PhD students as well as monitoring activities with 12 undergrads from UnHas, which is a step in the right direction, as are current negotiations for an MOU with UnHas in Makassar. Moving beyond seeing the counterpart concept as a bureaucratic formality would be good for long-term institutional relations; universities can be important allies.

Another major weakness of the program is its reporting. There has been very little information published or distributed in Bahasa Indonesia about research activities and results, whether for government, media, or local consumption. This flow of data in English, bypassing Indonesian venues and moving directly into the knowledge banks of the Western world, is a dynamic with colonial allusions that a well-intentioned and well-funded contemporary scientific endeavor such as OpWall should make all attempts to avoid. Further, both reporting and capacity building are issues that will become more important in the eyes if Indonesian stakeholders as OpWall's activities become better known in the region: to paraphrase what one interviewee expressed to me, the paradox of becoming more open and sharing information is that you become more open to criticism that you're not doing enough.

C. Assessing the hypothesis

In this study, I asked how the institutional structures and relationships of a research station (in this case program) shape the activities and perceptions of the program, and how these perceptions, in turn, shape and constrain program function. I hypothesized that certain structures and activities were particularly important: in brief, (1) formal institutional relationships, (2) prominence of Indonesians, and (3) a perception of “usefulness”. Below I consider each of these briefly in turn.

Institutional structures/relationships

OpWall has created several more-or-less formal institutional relationships that are clearly vital to the program’s smooth function. Perhaps the two best examples are its relationships with Wallacea Development Institute and with Yayasan Bajo Matilla. In the former case, the relationship with WDI – cemented by an MOU, annual payments, and liaison work by a Jakarta-based Deputy Director – has afforded OpWall with a readymade set of powerful Indonesian political contacts, and a clear institutional umbrella under which to forge MOUs with other agencies like LIPI and PHKA. In the latter case, the relationship with local Sampela organization YBM is arguably what allows the company to conduct successful research tourism at all in this unique and politically isolated community. Without YBM members’ local understandings (including linguistic abilities), political relationships, and long-term commitment to conducting activities in a way that is mutually beneficial, it is doubtful that OpWall would be able to achieve the immersion it now has, or operate without producing damaging tensions over financial benefits. This is as much YBM self-interest as concern for OpWall. Chris Majors says, “Whenever you come into a community, there’s politics. The Yayasan is sitting slap bang in the middle of that. We have a long-term investment in Sampela and we have to make very sure that bringing OpWall into the community are not going to adversely affect us.” Meanwhile, YBM gains both in financial support and in the information gained through student research.

OpWall Trust’s coordination with Folkani on its community fisheries monitoring study is another example of the efficacy of institutional alliances. By contrast, OpWall’s relationships with other communities, where it lacks formal agreements or local institutional allies, have been contested in some cases. The issues over interview fees on Kaledupa, and requests by a few communities around Lambusango that the program not return to their village, may be construed as examples of the importance of cultivating strong and transparent relationships with stakeholders.

While I emphasized institutional structures in my hypothesis, this case study also clearly shows the importance of people and personal relationships in creating positive perceptions. The role of certain long-term OpWall employees in Jakarta and the field are what maintains functional relationships and smooth operations within the context of these formal structures. Finally, financial resources are clearly key to program functionality. In contrast to other sites in this comparative study, OpWall’s ability to hire a variety of liaisons and create obvious monetary benefits for local stakeholders are fundamental to its largely positive image.

Prominence of Indonesian researchers or employees

OpWall scientists, top administrators, and student volunteers are, almost without exception, foreign. Indonesians, some “local” and some not – for example, a Javanese organization has typically been hired to manage logistics at the forest site – are employed in sizable numbers as staff during the field season. It was not my sense that this fact has generated any ill will,

although at Labundo-bundo a group of local residents and a former staff member (now with GEF) are attempting to create an LSM to replace Javanese contractors. Obviously, the program is perceived as a foreign institution, participants as “tourists” more than anything else. One undeniable corollary perception is that there must be great amounts of money flowing through this program.

It is my own belief, based on comparison with the other research programs in this study, that as time goes by OpWall will come under increasing scrutiny and pressure from civil society to include Indonesians in its scientific activities.

“Usefulness”: Linking research and conservation/development

There are a variety of ways that a research station can be “useful” to different sets of stakeholders: a station may provide direct environmental protection benefits like additional enforcement or awareness; it may provide data that builds knowledge in the international scientific community; it may be a source of local tax revenue; it may promote capacity building to universities and practitioners. We should not think solely of whether and how the information generated by research is used to either manage natural resources or build a knowledge base for community development and alternative income activities. That said, this research-application feedback loop is an ideal towards which to aim.

In this report I have discussed various ways that OpWall activities benefit different sets of stakeholders; I have also discussed the program’s shortcomings in this regard. Let me briefly reiterate some of these facets of “usefulness” as they relate to resource management. Note that often, benefits do not flow from the results of research as much as from its conduct or from parallel activities by people associated with OpWall:

- OpWall-affiliated researchers were among the advocates for establishing Wakatobi as a national marine protected area.
- Years of interviews about conservation-related topics has raised limited awareness of reef bombing and cyanide poison use. Conversely, one wonders whether locals have come to see these two dictates – don’t bomb the reefs or use *bios* - as what conservation means, without a broader understanding of resource management goals.
- OpWall’s financial inflows create “added value” for natural ecosystems: “They study in the forest, not in the village,” says one local leader. “People see that if there weren’t a forest, they wouldn’t come. So the forest has added value to us.”
- Establishment of a No Take zone in front of Hoga, the direct result of OpWall negotiations, has provided a prime experimental site for research, and a testing ground for fisheries restrictions that local fishermen and park managers can observe directly.
- OpWall initiated the GEF Lambusango project in order to conduct applied conservation work in its research zone. This ambitious project will, in theory, funnel money into community livelihood efforts like developing sustainable and profitable cattle husbandry, developing ginger as a viable crop, and improving local governance networks to combat illegal logging and develop better resource management.

Can a program with a limited annual time-frame (10-12 weeks) and large inexperienced set of volunteers truly generate “useful” data, either socioeconomic or ecological? There is, upon reflection, no reason to *assume* this will occur. As one interviewee noted, “We shouldn’t imagine there’s a natural link between what we’re interested in, as researchers, and what communities want and are interested in. We have to admit that we are, to a degree, living in two

different worlds.” On a basic level, there exists a gap between the goals of a biodiversity conservation research agenda (or an academic anthropology agenda) and the expectations or hopes of local stakeholders. In terms of community development or even management of resources like fisheries and forests, the locally “useful” questions revolve largely around people – their practices, beliefs, economies, policies, and how managers might experiment to change these for the common good.

“Usefulness” is, though, a primary stated objective of OpWall’s research agenda. Moreover, the program structure clearly presents the opportunity for long-term annual monitoring and for projects that build off of previous data bases. What sorts of relevant research is being or might be done? A GEF-project interviewee suggested topics like rattan extraction, asphalt extraction, timber resource mapping, agricultural intensification experiments, and water resources. On the marine side, various people pointed to aquaculture and Kaledupan agriculture. OpWall’s current research agenda appears to address most of these topics – the question is, are the results being put to use, or is there a more basic disconnect? A disconnect that mirrors the divide we see everywhere between academic science and applied conservation or development?

If the Trust continues to expand its activities, OpWall is right in thinking it will be most effective by considering how student research can interface with and support these applied projects. The bridging role of Trust activities like GEF and the nascent Fisheries/COREMAP initiative is an interesting link in the question of “usefulness”. Just as there are hopes that research can be used, there are risks involved in designing “applied” research if neither the research institution nor the government have the capacity or will to follow up on the results. “It’s always just recommendations that come out of the research,” said several people. Figuring out how – and to what extent – to link OpWall’s research into applied conservation or development initiatives is the organization’s current challenge.

Recommendations

Below I list some of the recommendations that have emerged from this study. As I have discussed the rationale for most of these suggestions in various sections above, I do not elaborate greatly unless necessary.

- *Translation and dissemination:* OpWall should devote greater resources to translating and disseminating results in ways accessible to multiple stakeholder audiences. Some possible mediums are Indonesian journal articles; newspaper or magazine articles; annual short summaries that are broadly distributed to local governments; additional *sosialisasi* presentations; a periodic local radio or TV broadcast; a DVD recording or attractive documentary video for schoolchildren; and a single volume with summaries of research findings thus far.
- *Seeking evaluation and feedback:* OpWall’s activities would benefit from additional venues for soliciting feedback on its program. This might mean village meetings at the end of each season, in at least certain key sites like Labundo-bundo, Ambeua, and Sampela, to hear local voices – or, alternatively, hiring a year-round Indonesian staffmember to seek these voices out more privately. This feedback would doubtless provide useful suggestions for logistical and programmatic improvements; it would also keep the company aware of how it was seen by local people, LSMs, and government officers.

- *Reevaluate employee needs:* One step in the direction of both better dissemination and better feedback would be to extend selected employee contracts which currently end very soon after students leave.
- *Review of MOUs:* Particularly given the changes in government administrative structure in Buton and Wanci, OpWall should either take the initiative or at least be prepared to hammer out new agreements with government agencies. New tax discussions would not be surprising.
- *Strengthen ties with universities:* There are opportunities for better involving both students and docents. Given the dictates of regional autonomy (*otonomi daerah*), UnHalu will be a priority, although the company is currently pursuing an agreement with UnHas for good reason. If there are small ways to incorporate UniDayan (in Bau Bau) as well, this should be considered. It is my own view that academic capacity building not only is an ethical commitment in the context of a program that brings top scientists and extensive resources to a developing nation like Indonesia, but is also a strategic activity that builds the base of people who understand and support foreign research activities and scientific presence in the region.
- *Place more emphasis on interdisciplinary experience:* There is a major gap between social and biological science in OpWall's program, particularly for students and scientists doing dissertation work in the marine study sites. There are various ways to work towards bridging this gap. Diverse and shared experience is key. This might mean dissertation students being required to spend a little time at other study sites, or more shared seminars at which staff scientists and students can share data and experiences throughout the season.
- *Hold students accountable for returning dissertations:* The OpWall website would be a fabulous resource if it had links to more complete sets of student research findings.
- *Developing a long-term vision:* Finally, OpWall would position itself strongly for the long-term by formally developing its institutional 'vision.' According to web materials, the program hopes to remain at Hoga for at least another 15 years. To what ends is the research tourism being conducted? Any institution needs a clear and broadly understood statement of its goals in order to monitor and assess its success in achieving them.

Table 2: List of principal informants during site visit and preparation

Name	Position and Organization	Type of interview
<i>marine program</i>		
Andar	Yayasan Bajo Matilla (LSM, Sampela)	semi-structured
Chris Majors	Sampela research director, OpWall; anthropologist and resident, Sampela	semi-structured
La Mane	manager, Kaledupa research center	semi-structured & informal discussion
Udin	manager, Hoga research center	semi-structured
Damani	Sekretaris Camat, Kaledupa kecamatan	semi-structured
Suhaele	Kepala Desa, Sampela	semi-structured
Bapak	Kepala Desa, Sumbano	semi-structured
Bapak	Kepala Desa, Buranga	semi-structured
Ir. Syihabuddin	Kepala, Taman Nasional Wakatobi	semi-structured
Duncan May	Head of OpWall Trust fisheries project	semi-structured
Harianto	employee, OpWall Trust fisheries project	semi-structured
Nardin	employee, OpWall Trust fisheries project	semi-structured
Geertse Berueling	Owner, Tukang Besi diving resort (Hoga); has small development LSM Pesisir	informal discussion
Hasim	owner, hotels on Hoga and in Bau Bau	informal discussion
Jumadi	dosen, UniDayan (Bau Bau)	semi-structured
Wawan	head, WWF-TNC-BTN Wakatobi joint project	semi-structured
<i>forest program and GEF project</i>		
Edi Purwanto	Head, GEF project	semi-structured
Mahdi Agus Aswar Ode Anwar	Enforcement program, GEF project; former camp manager, Labundo-bundo	informal discussion
La Aete	former Kepala Desa, Labundo-bundo; employee Opwall	semi-structured
La Ode Suhaedi	current Kepala desa, Kakinauwe	semi-structured
Bapak	Kepala Dusun, Toruku	semi-structured
Budu Salam	head, KSDA resort, Kakinauwe and Lambusango	semi-structured
Muhsin	teaching staff, Fakultas MIPA, Universitas Haluoleo; OpWall counterpart	semi-structured
Steve Oliver	Deputy program director	Email correspondence

Table 3: Research themes for OpWall study sites (source: www.opwall.com)

Marine research themes and proposed projects (for 2006):

1. Coral reef dynamics
2. Coral reef biodiversity and ecology
 - a. HO110 Coral Reef Transect Monitoring
3. Mangrove biodiversity, ecology, and exploitation
4. Seagrass and sand flat biodiversity, ecology, and exploitation
 - a. HO410 Assessing the productivity of reef flats and sea-grass beds
5. Fisheries exploitation
 - a. AM510 Fishery monitoring in the Kaledupa Stakeholder Area
6. Developing mariculture activities
7. Ecotourism
8. Social and cultural changes
9. Protected species
 - a. SB900 Sea mammal usage of the Wakatobi National Park

Forest research themes and proposed projects (for 2006):

Objective 1: To maximize income to the local communities around the edge of the Lambusango Forest Management Area from sustainable uses of the forest.

- SM101 Have the village contracts developed under the Lambusango GEF project impacted on village economies?
- SM102 Economic value and sustainability of rattan extraction to communities surrounding the Lambusango Forest Management Area
- LB103 Quantifying the economic benefits of research tourism as a financial incentive for good environmental practice

Objective 2: To ensure that communities on Buton Island are aware of the importance and uniqueness of the Lambusango Forest Management Area and that facilities are developed and used so that the forests can be used as an educational resource for schools and Universities in SE Sulawesi.

- SM201 Has the level of environmental awareness of local communities around the Lambusango forests increased since 2005?

Objective 3: To ensure that the levels of non-compliance with the Lambusango Forest Management Area regulations decreases over the period to 2007.

- SM301 Has illegal logging within the Lambusango forests declined since 2005?

Objective 4: To ensure the effectiveness of the proposed management plans for Lambusango and Kakenauwe in maintaining forest structure and coverage.

- LB403 Usage and value to local communities of medicinal plants in central Buton Island
- LB404 The effect of altitude and disturbance levels on the distribution of epiphytes
- LB405 Dispersal strategies by forest trees in central Buton
- LB406 Plant succession during forest regeneration from clearances in the forests of central Buton Island
- LB407 A test of the Janzen/Connell hypothesis for forest tree diversity

Objective 5: To ensure the effectiveness of the proposed management plans for the Lambusango Forest Management Area in maintaining biodiversity value of the forests.

- BM521 Habitat usage of targeted bird species of conservation value in the Lambusango forests
- LB531 Habitat relationships of herpetofauna assemblages across a habitat disturbance gradient
- LB532 Life-history variation in Calamaria snakes

- LB533 Breeding ecology of the treefrog *Rhacophorus georgii*. (Must be undertaken during weeks 1 - 4)
- LB534 Thermal ecology and habitat partitioning in skinks
- LB551 Microhabitat preferences of endemic rodent species on Buton
- LB561 Estimating density and population turnover of the Malay civet
- LB562 Evaluating 'footprint tunnels' as a method for assessing civet activity and relative abundance
- LB563 Determining home-range size and intra-sexual spatial organization of the Malay civet
- LB564 Fine-scale habitat selection by civets

Objective 6: To ensure that populations of flagship species such as Anoa are maintained in the forests.

- LB621 Food preferences of crop raiding and non-crop raiding Buton macaques
- LB622 Home range and day range of the Buton Macaque in relation to resource abundance
- LB623 The impact of crop raiding by the Buton macaque on farms around the edge of protected forest areas
- LB624 The times spent on various activities by Buton macaques of different ages and sexes
- LB625 Attitudes towards the Buton Macaque as a crop pest, as a pet and attitudes towards its conservation
- LB627 Habitat selection for sleeping holes and family group composition in the Buton Tarsier