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Local and Semi-Local Economic  
Impacts of Dive Tourism in  
Bunaken National Park, North  
Sulawesi, Indonesia



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# **Local and Semi-Local Economic Impacts of Dive Tourism in Bunaken National Park, North Sulawesi, Indonesia**

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and WWF Indonesia**

## **Reference**

Local and Semi-Local Economic Impacts of Dive Tourism in Bunaken National Park,  
North Sulawesi, Indonesia. Tyler Davis, 2005. Study report for WWF-Indonesia 54 pp.

## **Abstract**

Bunaken National Park, North Sulawesi, is governed by the Bunaken National Park Management Advisory Board (BNPMAB), a co-management board formed by executive decree of the governor of North Sulawesi. However, the authority of the BNPMAB has recently been threatened by criticism in local newspapers and in park communities concerning the perceived lack of benefits for local people. In one spectacular event in January, 2004, physical violence erupted in one community to protest the authority of the park. Many accounts of the event report an intense discontent with the distribution of economic benefits from the park, not the least of which is the distribution of the entrance fee. In response to these circumstances the BNPMAB has commissioned this report on the local economic impact of tourism.

This study has three objectives: to determine the economic impacts of tourism of Bunaken National Park in three locations: Bunaken Island, a tourism island, Manado, the provincial capital, and Manado Tua, a non tourism island.

## **Primary Tools of Analysis**

*Economic Impacts of Tourism:* This research involved 1. The impacts of external (international) private investment on local economies and 2. The relative wages of employment in the nascent tourism industry. Including, but not limited to: establishing employment statistics and household size of the island villages through structured interviews; establishing tourism employment levels (formal and informal) through dive operation and home-stay interviews, boat use (frequency and type of boat), interviews of informal participants; compiling and indexing to current prices past investments from NGOs and the co-management board.

*Local Baseline Data Collection:* Recording itemized household expenditures of six communities on two islands to compose an index of goods and services used by profiled communities. Average local expenditures were used to weigh relative impacts of primary and secondary tourism employment. Additionally, boat usage surveys were used to estimate the percentage of local workforces primarily employed in fishing.

*Results:* Results come in two primary forms. The first is the number and distribution of jobs derived from tourism. Nearly 1100 jobs have been created by the tourism industry in and around Bunaken National Park, with percentage of the workforce employed due to tourism ranging from 83% in Siladen to 17% in Alung Banua. The second is the total economic impact of dive tourism on the local economy- a dollar figure. Adjusted for inflation the post-money multiplier impact of dive tourism on the local economy is \$220,000,000 with an annual adjusted running cost impact of \$30,000,000. This research concludes that dive-based tourism is a viable means of financing alternative employment in the Bunaken National Park, and may be used in conjunction with total economic value studies to create a compelling working model for sustainable future MPAs in North Sulawesi and Indonesia.

## **Report Outline**

Abstract

Article Outline

1. Introduction
  - 1.1. Map
  - 1.2. Geographical group breakdown
2. Methods
  - 2.1. Dive Tourism and Homestay Operators
    - 2.1.1. Interviews
    - 2.1.2. Observation
  - 2.2. BNPMAB
    - 2.2.1. Interviews
    - 2.2.2. Document Analysis
  - 2.3. Informal Employment
    - 2.3.1. Souvenir Sellers
    - 2.3.2. Fish Suppliers For Tourism
    - 2.3.3. Boat Builders
    - 2.3.4. Charter Boat Operators
  - 2.4. Baseline Data
    - 2.4.1. Boat Usage (Employment Level)
    - 2.4.2. Fishing Employment
    - 2.4.3. Home Economy Survey
    - 2.4.4. Participant Observation in Bunaken and Alung Banua
3. Baseline Economic Data
  - 3.1. Manado
    - 3.1.1. Population
    - 3.1.2. Employment
  - 3.2. Bunaken
    - 3.2.1. Population
    - 3.2.2. Workforce
    - 3.2.3. Cost of Living
  - 3.3. Manado Tua
    - 3.3.1. Population
    - 3.3.2. Workforce
    - 3.3.3. Cost of Living
4. One Time Costs
  - 4.1. Tourism Operators
    - 4.1.1. South Manado Group
    - 4.1.2. North Manado Group

- 4.1.3. Island Group
    - 4.1.4. Tourism Operator Total
  - 4.2. Secondary Tourism Total One Time Costs
    - 4.2.1. Breakdown of Destination of One Time Costs
- 5. Running Costs
  - 5.1. Dive Operators
    - 5.1.1. South Manado Group
    - 5.1.2. North Manado Group
    - 5.1.3. Island Group
  - 5.2. BNPMAB
    - 5.2.1. Employment
    - 5.2.2. Expenditures
  - 5.3. Secondary Employment
    - 5.3.1. Employment
    - 5.3.2. Expenditures (Income)
  - 5.4. Government
    - 5.4.1. Tax Estimates
- 6. Distribution Tourism Benefits
  - 6.1. Jobs
  - 6.2. Initial Investment
  - 6.3. Running Costs
- 7. Conclusions
  - 7.1. Island Impacts
    - 7.1.1. Jobs
    - 7.1.2. Wages
    - 7.1.3. Additional Fiscal Injection
  - 7.2. Manado and Mainland
    - 7.2.1. Jobs
    - 7.2.2. Additional Fiscal Injection

## References

Appendix A  
Appendix B  
Appendix C

# 1. Introduction

Bunaken National Park (BNP) is a marine protected area (MPA) covering over 89,000 hectares outside of Manado in North Sulawesi, Indonesia. Established in 1991, and having successfully created sustainable financing mechanism, a co-management board and an enforcement system, BNP is widely hailed as a successful example of conservation in international development. Additionally BNP is heralded as a rich site of biodiversity, providing habitat to at least 1000 species of coral reef fish from 175 families (BNPMAB 1996), and approximately 400 species of scleractinian hard coral representing 63 genera and 15 families (Turak and DeVantier 2003).

Besides its important coral reefs, the park contains approximately 20 percent of the region's mangrove habitat (Merrill and Davie 1996). This park is hailed internationally as an example for successful marine national parks not only for the protection of marine diversity but also for its achievements in involving local communities in policy-making and decision-making processes via its innovative co-management board and its attempts at alleviating poverty whilst conserving biodiversity.

The BNPMAB has anticipated the need to fund park management activities, law enforcement and community improvement projects through the development of a diversified portfolio of sustainable financing options that includes a decentralized entrance fee system, in-kind support from the private sector, an international volunteer program, governmental budgetary support, national and international grants, a possible endowment fund and visitor centre merchandising. Following other national park sustainable-financing models and informed by research conclusions in a 1998 Willingness-to-Pay survey in TNB (Lee 2000), BNPMAB established a decentralized mandatory entrance fee system for local and international visitors to TNB in 2000.

Since TNB relies on a market-based approach to conservation through its reliance on ecotourism as a sustainable financing mechanism, it is important to ensure that ecotourism will continue in the region. In order for both ecotourism and MPAs to be successful in the long-term they must be economically viable, environmentally sustainable, and enjoy support from the local communities (Wall 1997, White et.al. 1994). TNB has no doubt achieved this; however, recently articles in local newspapers have questioned the co-management board's ability to support the local economy.

There is no question that a large amount of money flows into this area as a direct result of its status as an MPA. From these economic benefits, 20% of park funds are given directly to local government institutions (*Pendapatan Asli Daerah*). Regional benefits are also accrued as a result of visitor purchases in local businesses, tax collected from tourism establishments, and airport tax paid upon departure. Direct benefits to local villagers are the form of employment in tourist industries (wages and benefits such as health care) and in-kind assistance such as NSWA education and scholarships programs that support poor families as well as donations of paint to churches/library books for village schools and libraries.

Despite these benefits, the BNPMAB currently has no data on the actual benefits accrued to the region or to local park residents or the economic impact of the park on the local city of Manado. These solid figures are valuable for the BNPMAB in order to be able to contest current accusations as well as inform future policy decisions with figures that neither underestimate nor overestimate such benefits. This information will be available for distribution to the local population in an effort to create the appropriate environment acknowledged to sustain the local support necessary for continued MPA success (Buck 1995, Cato and Orbach 1978, Clay and McGoodwin 1994).

### 1.1 Map

Finally, for the purposes of this study the groups of dive operators, homestay operators, secondary employees and BNPMAB have been broken down into three geographic groups for which information was combined to protect privacy.

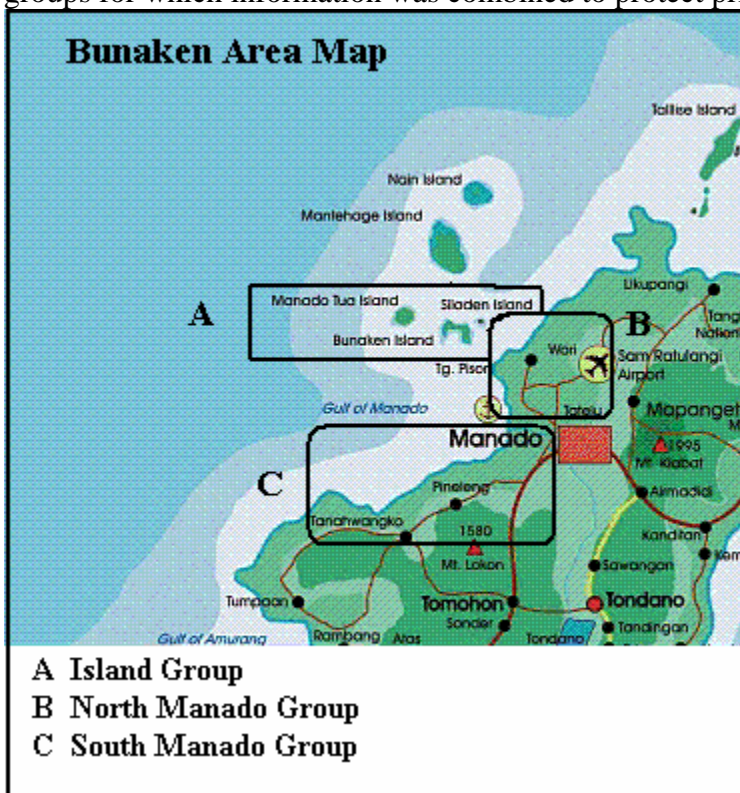


Image from: <http://www.north-sulawesi.org/maps/northsulawesi.gif> by Michael Wijawa

Dive Operators that were not available for interview or did not wish to participate are denoted by an astrich (\*). The dive operators and homestay operators for each area are:

## 1.2 Geographical Group Breakdown

<b>South of Manado Group:</b>	Baracuda*	Two Fish
Minahasa Lagoon	Kikisi*	Sea Breeze*
Eco Divers	Tasik Ria*	Daniels*
Minahasa Prima	Bohowo Lodge	Papa Boa*
Lumba Lumba	<b>Island Group:</b>	SDQ*
Murex	Froggies	Scubana*
Celebes	Siladen Spa and Resort	Panorama*
Blue Banter*	Living Colours	Ocean Star
	Bastianos	MC
<b>North of Manado Group:</b>	Nelson's*	Martha's*
NDC*	Lorenzo I and II	Siladen Homestay I*
	Cha Cha	Siladen Homestay II*

## 2. Methods

The methods of gathering data for evaluating the impacts of tourism contain both quantitative and qualitative elements. To gather information from stakeholders as diverse as villagers involved in the informal tourism to million dollar companies requires a variety of methods tailored to the dynamics of each group.

Stakeholder groups include Dive Tourism and Homestay Operators (2.1), BNPMAB (2.2), and Informal Employment (2.3). Methods for gathering baseline data on communities include interviews, questionnaires, and participant observation (2.4). Two islands were chosen for baseline data; Bunaken Island as an example of an island that has a developed tourism economy, and Manado Tua, as an island that has little to no tourism economy. Questionnaires, surveys, and interviews were conducted in each village. For Bunaken Island the three villages are: Desa Bunaken (including Kampung Kristen and Kampung Islam), Tanjung Parigi and Alang Banua. For Manado Tua the four villages are Bualo, Manado Tua, Papingdang, and Pangalingang.

This section outlines methods for obtaining economic impact data by group of stakeholders, and methods for gathering baseline data by method.

### 2.1 Dive Tourism and Homestay Operators

The primary methods of gathering data were formal interviews and data gathered from participant observation to qualify data and help extrapolate in instances of refusal to participate.

#### 2.1.1 Interviews

As reviewing accounts of private companies is a delicate affair, the first step to ensuring cooperation was to garnish support and understanding for the study. To that end the



researcher attended meetings of both the North Sulawesi Water Sports Association (NSWA), and the Association of Local Tourism Industries (HPWLB). At these meetings the researcher presented the forms to be used and the conditions of use (Appendix A for all survey forms). Secondly, the researcher contacted each business owner in person and met to explain the purpose of the study. If the owners consented to be interviewed the researcher scheduled an appointment. Of the foreign-owned resorts the researcher successfully followed the initial meeting with a formal interview in 12 of 16 occasions (75%), and 5 of 12 occasions for local operators (42%). Once the data was collected, the researcher summarized it, and returned it to the owner for review. If the owner found inaccuracies the researcher arranged a meeting to make changes. In total the researcher conducted over 43 meetings with foreign diver operators and over 22 meetings with local owners.

### **2.1.2 Participant Observation**

In addition to the formal interview process the researcher lived in, and observed the daily running of a locally run home stay and a foreign owned dive resort. Living in a local homestay on Pantai Liang on Bunaken Island for 10 weeks, the researcher observed the running and repair costs of operation. Later, for operations that did not consent to interviews the researcher relied on notes taken from this period to estimate the expenditures of one class of locally run home stays.

Additionally, the researcher lived and worked out of a foreign-owned dive resort on Pantai Panglisan on Bunaken Island for three months while conducting research in Tanjung Parigi and Alung Banua. The experience of observing the daily operational costs of running a foreign owned dive resort, coupled with a broad knowledge of the other foreign owned dive operations added depth to the researchers ability to estimate the investment and running costs of businesses that chose not to participate in the study.

## **2.2 BNP MAB, Bunaken National Park Advisory Board (*Dewan Pengelolaan Taman Nasional Bunaken*)**

Methods for data collection from the BNP MAB included structured and unstructured interviews and research of financial data archives.

### **2.2.1 Interviews**

Interviews with BNP MAB staff were of two types. First, using structured interviews, in which the researcher has distinct informational goals and asks a pre-arranged series of questions, the researcher gathered data on the activities, employment histories, employment levels, and average wage levels of BNP MAB employees and subcontractors.

Secondly, using semi-structured interviews, in which the researcher has distinct informational goals but allows conversation to approach topics in the natural flow of conversation, the researcher utilized the expertise of the staff to outline the structure of businesses within BNP, and to locate additional sources of investment and employment in the park. In total over 23 distinct interviews were conducted with BNP MAB staff.

### **2.2.2 Document Analysis**

To gather data concerning the amounts and breakdowns of the spending patterns of the management board the researcher interviewed and collected data directly from the BNPMAB. The researcher collected the financial reports for the years of its operation (2001-2004) and the itemized monthly expenditures from 2004. Breaking down operational expenditures into geographical categories, establishing the residency of BNPMAB employees, and grouping conservation related expenditures enabled the researcher to determine the distribution and amount of spending since the establishment of the BNPMAB.

## **2.3 Informal Employment**

For the informal markets, or secondary employment for which no written record exists, the researcher relied on interviews and participant observation to determine levels of employment, and estimate average wage levels. Categories of employment include souvenir sellers, fishermen, boat builders, and charter boat businesses.

### **2.3.1 Souvenir Sellers**

One significant portion of informal employment consists of local women selling souvenirs on the beach. Due to the informal nature of souvenir selling no record of employment or wage levels exists. To determine the number of souvenir sellers the researcher took base data by cataloging the demographics of the sellers through 42 personal interviews during the high season in June. Over the next six months the researcher counted the number of vendors at each location a minimum of twice a month to determine trends of participation in the market. To collect data on the income of beach vendors the researcher sat and observed the frequency of sales and price levels of sales over the course of three days. The researcher indexed sales and profits to the monthly arrival of tourists to discount from unusually high levels of sale during the peak season.

### **2.3.2 Tourism Operation Fishermen**

Though infrequent, the employment of an individual fisherman to work as an independent contractor for a specific dive operation does occur. In instances when the researcher discovered such contracts, the researcher interviewed the fisherman to determine specific employment levels, and wage levels, and if possible, the dive operation owner.

### **2.3.3. Boat Builders**

Within the boat building trade there exists the niche market of tourism boat builders that have specialized and now nearly exclusively work on building and maintaining tourist boats. The researcher established the number of employees in this niche market, and average wages of boat builders on Bunaken Island. Methods included interviews and participant observation. Interviewees included the managers of each boat building group in Desa Bunaken, interviews with workers in Tanjung Parigi, and the researcher participated in building a *pelang* (outrigger canoe) on Pantai Liang over the course of two weeks.

### **2.3.4 Charter Boat Operators**

The three categories of charter boat operators include Catamaran Operators, Chartered Transportation (speed boats, and “transport” larger boats), and Snorkeling Tours. The researcher interviewed transport operators in the harbor in Manado, and on the beach of Desa Bunaken. Collected information was cross referenced with interviews from the dive operators, informants in the charter boat business, interviews with employees of the toll booth on Pantai Liang, and with local knowledge of boats to establish ownership, employment levels, and average wage.

## **2.4 Baseline Data**

In an effort to weigh the real impacts of the variety of formal and informal tourism markets the researcher had to establish baseline data against which to weigh tourism employment. The categories of inquiry were boat usage, catch, home economy surveys, and participant observation.

### **2.4.1 Boat Usage (Employment Level)**

To catalogue the employment demographics in the tourism industry the researcher conducted surveys of the usage patters of the boats in all the villages of Bunaken and Manado Tua. During one-week intervals the number and type of boats on the beach at 7am and 4pm were recorded. These times were chosen to cover morning and evening fishing expeditions. Indexed against the number of employees per boat, and the number of boats on the beach during the holy days of Sunday for Christians and Fridays for Muslims data for the number, frequency, and type of fishermen using reef resources was obtained.

### **2.4.2 Fishing Employment**

In the villages that supply the vast majority of employees on Bunaken Island, one major opportunity cost of working in tourism is working in fishing. Within the fishing community there exist three primary means of fishing.

The most popular is the *funae*, a 12-15 man line fishing collective in which profits are split into share among the fishermen and the owner. The second is *pelang* fishing, where the fishermen uses an outrigger canoe fitted with a longshaft propeller or an outboard motor and are responsible for their own costs, but reaps all benefits. The third is the *londe*, a small paddle-operated canoe which operates above or just off the coral reef.

The researcher accompanied fishermen on *funae* and *pelang* fishing expeditions and conducted interviews with fishermen who use each method. Information on costs and benefits were collected over the course over 20 distinct interviews during five months of observation; three while living in Desa Bunaken and two while living on Liang.

### **2.4.3 Home Economy Survey**

The researcher conducted week-long household expenditure surveys in all the villages of Bunaken and Manado Tua. Surveys were conducted with a minimum random sample size of 5% of households. The gathered data was used to establish the CPI for the tourism and non-tourism islands, as well as the benefits of room and board for employees that live in dive operations. Recording the daily expenditures per household of indexing

for number of people in the household, the researcher established a benchmark for current cost of living in each village.

#### **2.4.4 Participant Observation in Bunaken and Alung Banua**

Additional information was collected during a five-month period when the researcher lived in Desa Bunaken and Alung Banua. During that time the researcher conducted semi-structured and informal interviews of the villagers on topics of opportunities for employment, including discussions on average wages, socially acceptable wages, barriers to entry, non-wage benefits and opportunity cost of different types of employment. Formal interviews were conducted with the heads of each village on the islands of Bunaken and Manado Tua to gather statistics on population and demographics, and to discuss the history of investment in the park.

### **3. Baseline Economic Data**

The first step for contextual understanding of economic benefits from tourism is an accurate estimation of the current demographics and economic dynamics of the local economy. In areas of greater economic activity a marginal change has proportionally less effect than in areas of lesser economic activity; an additional ten jobs in a city of a million people has less impact than ten additional jobs in a community of one hundred households. Within in the context of BNP, baseline economic data has been established for three regions of economic activity: the city of Manado (3.1), Bunaken Island (3.2), and Manado Tua Island (3.3).

As the primary driving force of the local economy, even a cursory examination of the benefits of tourism reaped by the city of Manado is helpful to gain an understanding of the possible benefits of tourism for larger local economies. The island of Manado Tua, with a traditional economy of fishing and farming was chosen as a non-tourist example to serve as a control to the island of Bunaken, an island with an entrenched tourism industry.

For each region of interest the local demographics are followed by a breakdown of employment patterns and local cost of living. Local government statistics are used for the Manado and Island populations, and their accuracy must be introduced with some caveat. However, the researcher counted the total number of households for the each village on Bunaken and Manado Tua when conducting home economy surveys, and the listed government statistics appear to be accurate.

Government population statistics for Manado come from the *Badan Pusat Statistik* (Department of Statistics). For the islands the researched interviewed each *Lurah* or *Hukum Tua* (village head) and reviewed their most recent census figures. To establish employment levels the researcher used surveys, questionnaires and personal observation to gather data.

#### **3.1 Manado**

Statistics for the city of Manado are taken from the Manado Statistic Office (*Badan Pusat Statistik Kota Manado*) from their 2003 City of Manado in Statistics (*2003 Kota Manado*

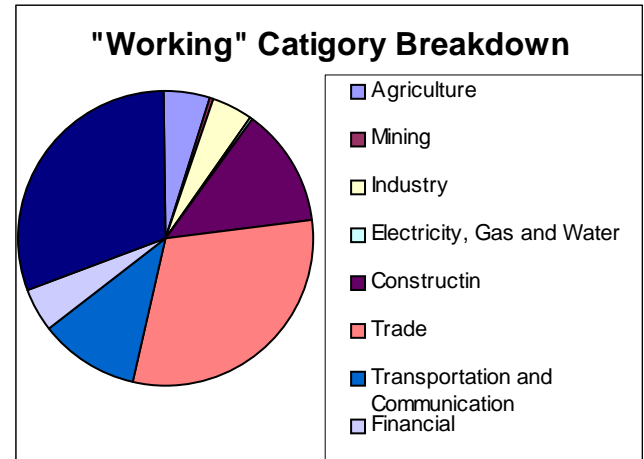
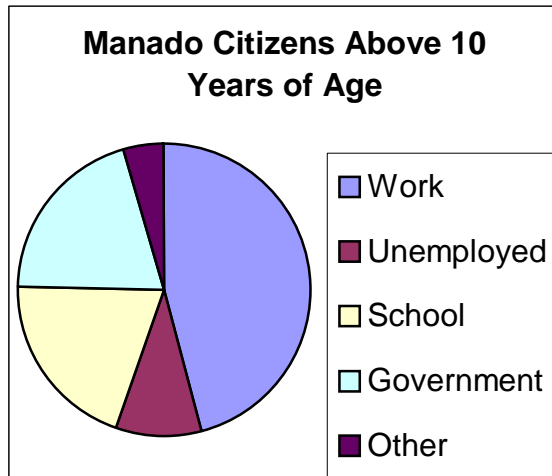
*Dalam Angka*). Within the city of Manado there are nine districts by which statistics for the city are broken down.

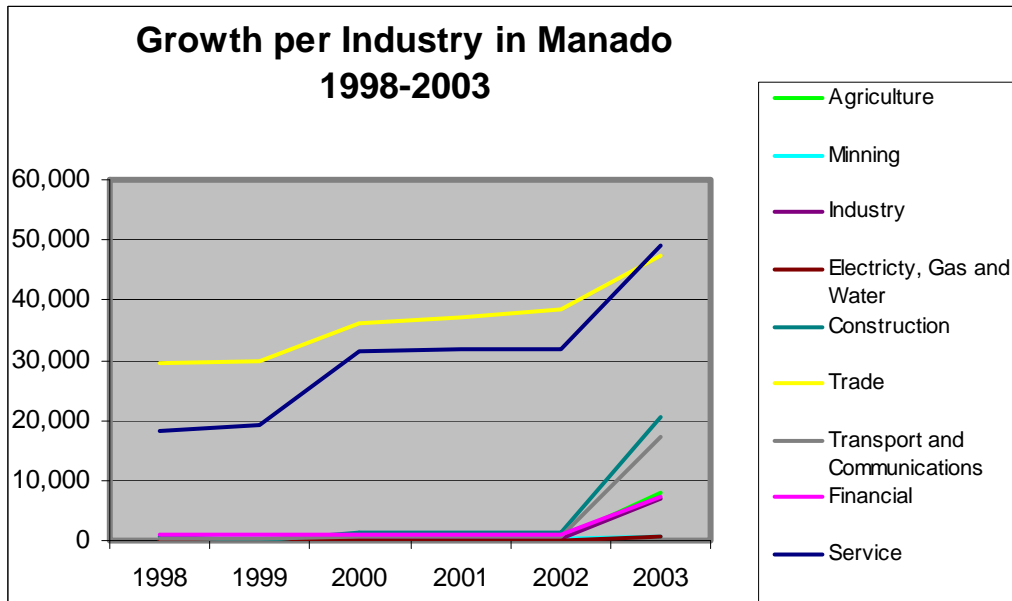
### 3.1.1 Population

City of Manado					
District	Total Population	Men	Women	Households	People Per Household
Malalayang	54,251	27,459	26,792	13,012	4.17
Sario	25,600	12,923	12,677	6,226	4.11
Wanea	56,675	28,460	28,215	13,056	4.34
Wenang	37,678	19,285	18,393	9,125	4.19
Tikala	65,600	33,080	32,520	15,583	4.21
Mapanget	45,027	23,189	21,838	11,728	3.84
Singkil	46,634	23,707	22,927	10,270	4.54
Tuminting	49,439	25,177	24,262	10,951	4.51
Bunaken	19,960	10,267	9,693	5,167	3.86
<b>Total:</b>	<b>400,864</b>	<b>203,547</b>	<b>197,317</b>	<b>95,118</b>	<b>4.21</b>

### 3.1.2 Employment

Statistics for employment are broken down by type of employment, then type of employment over a six year period.





There are some interesting statistics about the level of imports and exports that move through Manado. Bearing in mind that the Service sector of the economy just surpassed the Trade sector in 2003 it is interesting to see the reported total value of imports and exports.

	Tons	Value (\$US)
Export	6,421,534,000	3,477,073
Import	5,732	383,335

source: Industry and Trade Department Office, Manado Table 8.1.1

## 3.2 Bunaken

Within the island of Bunaken there are two districts (*Kelurahan*), Bunaken, and Alung Banua. Within the *Kelurahan* there are five sub-districts (*Lingkungan*) representing people from the communities of Bunaken and Tanjung Parigi.

### 3.2.1 Population

<b>Bunaken</b>	Total Population	Kelurahan/ Lingkungan	Population Per Lingkungan	Men	Women	Heads of Household	HH Per	People Per
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<b>Island*</b>		n						Village Household
Bunaken Christian	1777	I-1	524	290	234	112	361	4.68
		I-2	581	310	271	105		5.53
		I-3	672	343	329	144		4.67
Bunaken Muslim	883	I-4	883	447	436	187	187	4.72
		Tanjung Parigi	501	253	284	114	114	4.39
Alung Banua	690	II-1	398	214	184	104	185	3.83
		II-2	292	147	145	81		3.60
<b>Total:</b>	<b>3851</b>		<b>3851</b>	<b>2004</b>	<b>1883</b>	<b>847</b>	<b>847</b>	<b>4.55</b>

\* Bunaken *Kelurahan* covers the *lingkungan* for Siladen, but it has been placed in a separate category for the purposes of this study.

### 3.2.2 Workforce

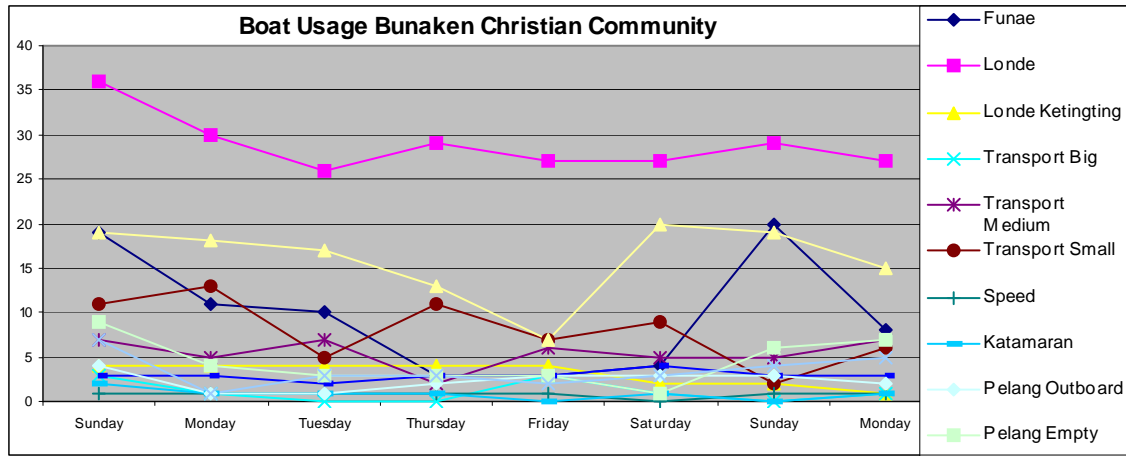
On Bunaken Island a traditional division of labor is still dominant, with the male head of household the sole wage earner of the family, while approximately 20% of female heads of household engaged in income earning activities. Given the number of households for each community, an estimate of the number of employment seeking individuals, or workforce, may be established.

<b>Bunaken Island Employment Seeking Individuals</b>					
	Kepala Keluarga	KK seeking wages	20% Female HH seeking wage	Total wage seekers (Workforce)	Workforce per Village
Bunaken Christian	112	112	22	134	433
	105	105	21	126	
	144	144	29	173	
Bunaken Muslim	187	187	37	224	224
	Tanjung Parigi	114	114	23	137
Alung Banua	104	104	21	125	222
	81	81	16	97	
<b>Total:</b>	<b>847</b>	<b>847</b>	<b>169</b>	<b>1,016</b>	<b>1,016</b>

Due to the small workforce and geographical boundaries of the islands a breakdown of wage earning activities is approachable.

To estimate the level of fishing-related employment a survey of the number and type of boat on the beach was conducted over a one-week period for each community. Data was collected at 7am and at 4pm, as there are two fishing schedules. The morning data collection records people that use Funae (live bait fishing), Pajeko (purse seine), and Pelang (motorized outrigger) boats to catch fish to sell for commission-based wages. Most of the evening fishermen use pelang and londe (paddle outriggers) to catch fish for personal consumption, though some sale of fish does exist, especially for pelang fishermen.

Collected data from the week was indexed against the traditional day of rest for each community; Sunday for Bunaken’s Christian community and Friday for Bunaken’s Muslim community. An example of the usage graphs is below, with graphs from all other communities in Appendix B.



With data on the number of people working on each type of boat an estimation of the number of people employed in fishing may be extracted. Through participant observation and interview the consensus was that funaes are staffed by 10 men, 20 use a pajeko, 2 use a pelang with an outboard motor, while only one fisherman per londe and ketingting motor pelang is normal. Taking information from the graph above the following estimations of employment levels in fishing for the communities of Bunaken Island can be made.

Bunaken Christian Fishing Employment	Mon	Tues	Thurs	Fri	Sat	Sun	Mon
Funae (12 per Boat)	108	120	204	204	192	0	144
Pelang Outboard (2 per Boat)	6	6	4	2	2	2	4
Pelang One Motor (1 per Boat)	2	3	7	13	0	1	5
Pelang Two Motor (1 per Boat)	6	4	4	5	4	3	2
Pelang Empty (1 per Boat)	5	6	6	6	8	3	2
Londe (1 per Boat)	6	10	7	9	9	7	9
Londe Ketingting (1 per Boat)	0	0	0	0	2	2	3
Percentage of employment by funae:	81%	81%	88%	85%	88%	0%	85%
Total Fishermen Employed per day:	133	149	232	239	217	18	169
Average People Employed in Fishing per non-rest day:	<b>190</b>						

Bunaken Islam Fishing Employment	Mon	Tues	Thurs	Fri	Sat	Sun	Mon
Pajeko (20 per Boat)	0	0	0	0	0	0	0
Pelang Outboard (2 per Boat)	0	4	6	4	2	4	6
Pelang One Motor (1 per Boat)	1	2	1	2	3	0	1
Pelang Two Motor (1 per Boat)	0	2	4	4	5	3	0
Pelang Empty (1 per Boat)	1	1	5	0	5	1	0
Londe (1 per Boat)	1	1	1	0	1	2	1
Total Fishermen Employed per day:	3	10	17	10	16	10	8



Average People Employed in Fishing per non-rest day: **10.7**

Bunaken Tanjung Parigi Fishing Employment		Thurs	Fri	Sat	Sun	Mon	Tues	Wed
Londe	(1 per Boat)	0	0	3	0	1	2	3
Katamaran	(2 per Boat)	0	4	0	4	0	0	0
Pajeko	(20 per Boat)	0	0	0	0	0	0	0
Pelang Empty	(1 per Boat)	0	1	1	1	1	1	1
Pelang One Motor	(1 per Boat)	0	2	1	0	2	2	0
Total Fishermen Employed:		0	7	5	5	4	5	4
Average People Employed in Fishing per non-rest day:		<b>5.00</b>						

Bunaken Alung Banua Fishing Employment		Thurs	Fri	Sat	Sun	Mon	Tues	Wed
Londe	(1 per Boat)	4	0	3	<b>3</b>	1	2	1
Transport	(3 per Boat)	0	0	0	<b>0</b>	0	3	0
Speed	(1 per Boat)	0	1	0	<b>0</b>	0	1	0
Pelang Outboard	(2 per Boat)	0	0	2	<b>2</b>	0	2	2
Pelang One Motor	(1 per Boat)	0	1	1	<b>2</b>	0	1	0
Pelang Two Motor	(1 per Boat)	0	0	0	<b>1</b>	0	0	0
Pelang Empty	(1 per Boat)	2	2	4	<b>3</b>	2	2	0
Taxi	(6 per Boat)	6	0	12	<b>0</b>	0	0	0
Total Fishermen/Transport Employed:		12	4	22	11	3	11	3
Average People employed in Fishing/Transport per non-rest day:		<b>9.43</b>						

The summation of these results gives a percentage of the population working in the fishing industry.

<b>Bunaken</b>	Bunaken Kristen	Bunaken Islam	Tanjung Parigi	Alban
Population of Each Village:	1,777	883	501	690
KK Each Village:	361	187	114	185
Wage Seekers per Village (workforce):	433	224	137	222
<b>Fishing (high employment mark)</b>	239	17	7	22
Fishing (average)	190	11	5	10
High % of workforce	55%	8%	5%	10%
Average % of workforce	44%	5%	4%	5%
Percentage of Island Workforce in Fishing (high):	28%			
Percentage of Island Workforce in Fishing (average):	21%			

### 3.2.3 Cost of Living

For each community a household economy survey was used to establish a cost of living index. Randomly selected households recorded the type and cost of goods and services they used during a week. The goods and services were compiled into a Consumer Price Index (CPI) that weighed the importance of each good relative to the weekly expenditure.

Relevant to this report is the average total household expenditure per village. These figures represent total cash outlays, and do not include the additional value of goods from the traditional sources, i.e. gifting fish, gathering vegetables from a garden or collecting leaves for consumption. Nevertheless, a figure representing the monthly participation level in the cash economy is a valuable tool for evaluating the relative weight of cash wages on the household level economy. Below is a summation of results of the household surveys displayed by village on Bunaken.

<b>Bunaken Village</b>	
Average Per Person Per Day:	5,670
Average Per Person Per Week:	39,690
Household of 4.85:	192,497
Household Per month:	818,110

<b>Tanjung Parigi</b>	
Average Per Person Per Day:	5,901
Average Per Person Per Week:	41,307
Household of 4.39 per week:	181,338
Household Per month:	770,685

<b>Alung Banua</b>	
Average Per Person Per Day:	6,130
Average Per Person Per Week:	42,910
Household of 3.73:	160,054
Household Per month:	680,231

### 3.3 Manado Tua

Within the island of Manado Tua there are two districts (*Kelurahan*), Manado Tua I and Manado Tua II. Within Manado Tua I *Kelurahan* there are four *Lingkungan* representing people from the communities of Manado Tua Negeri, and Bualo. Within Manado Tua II *Kelurahan* there are five *Lingkungan*, representing the communities of Papindang and Pangalingang.

#### 3.3.1 Population

<b>Manado Tua</b>	Total Population	Kelurahan/ Lingkungan n	Population Per Lingkungan n	Men	Women	Heads of Household	HH Per Village	People Per Household
Manado Tua Negeri	596	I-1	304	154	150	60	145	5.07
		I-2	292	151	141	85		3.44
Bualo	523	I-3	237	123	114	63	149	3.76
		I-4	286	153	133	86		3.33
Papindang	372	II-1	372	184	188	98	98	3.80
Pangalingang	1285	II-2	297	147	150	78	319	3.81
		II-3	313	154	159	81		3.86
		II-4	334	161	173	68		4.91

	II-5	341	167	174	92	3.71
Total:	2776	2776	1394	1382	711	3.90

### 3.3.2 Workforce

On Manado Tua Island a traditional division of labor between home-making and wage earning breaks cleanly along gender lines. Due to fewer wage-earning activities in the tourism industry the percentage of female heads of household earning wages is no more than 15%. Employment opportunities for women are generally limited to small shop owners, teachers, and domestic assistants for more wealthy community members. Again, given the number of households for each community, an estimate of the number of employment seeking individuals may be established.

<b>Manado Tua Employment-Seeking Individuals</b>					
	Kepala Keluarga	KK seeking wages	15% Female HH seeking wages	Total wage seekers (Workforce)	Workforce per Village
Manado Tua	60	60	9	69	167
	85	85	13	98	
Bualo	63	63	9	72	171
	86	86	13	99	
Papindang	98	98	15	113	113
	78	78	12	90	
Pangalingang	81	81	12	93	367
	68	68	10	78	
	92	92	14	106	
Total:	711	711	107	818	818

For the communities of Manado Tua the same boat analysis has been done as on Bunaken Island, resulting in the following boat usage and employment tables.

<b>Manado Tua, Bualo Fishing Employment</b>								
Morning		Fri	Sat	Sun	Mon	Tues	Wed	Thurs
Pelang 0	(1 per boat)	28	32	0	10	26	30	0
Pelang 1	(1 per boat)	0	1	1	0	0	1	2
Pelang Outboard	(2 per boat)	0	0	0	2	2	2	2
Londe	(1 per boat)	5	10	0	8	6	4	1
Pajeko	(20 per boat)	0	40	0	0	20	40	40
Percentage Employment by Pajeko		0%	48%	0%	0%	37%	52%	89%
Total Fishermen Employed:		33	83	1	20	54	77	45
Average People Employed in Fishing per non-rest day:		<b>52</b>						

Manado Tua, Manado Tua Negeri Fishing Employment

Morning		Fri	Sat	Sun	Mon	Tues	Wed	Thurs
Pelang 0	(1 per boat)	33	37	0	12	16	20	36
Pelang 1	(1 per boat)	0	0	2	2	1	0	0
Pelang Outboard	(2 per boat)	2	2	0	0	2	2	2
Londe	(1 per boat)	13	9	0	2	9	22	11
Pajeko	(20 per boat)	40	40	0	0	0	80	60
Percentage Employment by Pajeko		45%	45%	0%	0%	0%	65%	55%
Total Fishermen Employed:		88	88	2	16	28	124	109
Average People Employed in Fishing per non-rest day:		<b>75.5</b>						

Manado Tua, Pangalingang Fishing Employment								
Morning		Fri	Sat	Sun	Mon	Tues	Wed	Thurs
Pelang 0	(1 per boat)	55	66	0	64	59		61
Pelang 1	(1 per boat)	7	5	0	17	9		9
Pelang 2	(1 per boat)	4	3	4	4	3		0
Pelang Outboard	(2 per boat)	2	4	0	4	4		8
Londe	(1 per boat)	7	5	0	17	9		9
Total Fishermen Employed:		75	83	4	106	84		87
Average People Employed in Fishing per non-rest day:		<b>87</b>						

Manado Tua, Papingdan Fishing Employment								
Morning		Fri	Sat	Sun	Mon	Tues	Wed	Thurs
Pelang 0	(1 per boat)		3	0		2	4	3
Londe	(1 per boat)		16	0		6	9	8
Pajeko	(20 per boat)		40	0		0	60	40
Percentage Employment by Pajeko			68%	0%		0%	82%	78%
Total Fishermen Employed:			59	0		8	73	51
Average People Employed in Fishing per non-rest day:		<b>47.75</b>						

The summation of these results gives a percentage of the population working in the fishing industry.

Manado Tua	Bualo	Manado Tua Negri	Pangalingang	Papingdan
Population of Each Village:	523	596	372	1,285
KK Each Village:	149	145	98	319
Wage Seekers per Village (workforce):	171	167	113	367
<b>Fishing (high employment mark)</b>	83	124	106	73
Fishing (average)	52	76	87	48
High % of workforce	49%	74%	94%	20%

Average % of workforce	30%	46%	77%	13%
Percentage of Island Workforce in Fishing (high):	47%			
Percentage of Island Workforce in Fishing (average):	32%			

### 3.3.3 Cost of Living

For each community a household economy survey was used to establish a cost of living index. Randomly selected households recorded the type and cost of goods and services they used during a week. The goods and services were compiled into a CPI that weighed the importance of each good relative to the weekly expenditure. Relevant to this report is the average total household expenditure per village. These figures represent total cash outlays, and do not include the additional value of goods from the traditional sources, i.e. gifting fish, gathering vegetables from a garden or collecting leaves for consumption. Nevertheless, a figure representing the monthly participation level in the cash economy is a valuable tool for evaluating the relative weight of cash wages on the household level economy. Below is a summation of results of the household surveys is displayed by village on Manado Tua.

<b>Bualo</b>	
Average Per Person Per Day:	4,584
Average Per Person Per Week:	32,088
Household of 3.51:	112,629
Household Per month:	478,673

<b>Pangalingang</b>	
Average Person Day:	6,569
Average Per Person Per Week:	45,983
Household of 4.02:	184,852
Household Per month:	785,620

<b>Negeri</b>	
Average Per Person Per Day:	5,381
Average Per Person Per Week:	37,667
Household of 4.11:	154,811
Household Per month:	657,948

<b>Papingdang</b>	
Average Per Person Per Day:	3,064
Average Per Person Per Week:	21,448
Household of 3.80:	81,502
Household Per month:	346,385

## 4. One Time Costs

The primary aim of the study is to extract contextual information pertaining to the destination of expenditures in the tourism businesses. Expenditures are broken down into one time costs and running costs (section 5). Within the one time costs tourism operators are delineated by location; South of Manado, North of Manado and the Island Group of Bunaken, and Siladen.

### 4.1 Tourism Operators

Two barriers to accurate collection of this information exist; non-cooperative owners, and investments made in the past. For the tourism operations that chose not to participate in the study, (25% of foreign owned, and 58% of Indonesian owned) the researcher surveyed the location to establish the relative size and quality of the establishment, then indexed the location to a dive operation of similar size and quality. Whenever available the number of employees was used to weigh the index.

To address the change in value of investment over time two difficulties existed. One was to account for a change in the value of the Rupiah over time. The second was to account for initial investments made in a currency other than the Rupiah. To address the change in value over time the researcher compiled an index of daily exchange rates of the Rupiah to the US dollar for the entire period of tourism industry investment that was researched. Next an annual average exchange rate was calculated for each year. Then an index of inflation was taken from the Minneapolis Federal Bank to adjust the current value of dollars given the year of investment. The conversion calculation index is in Appendix C.

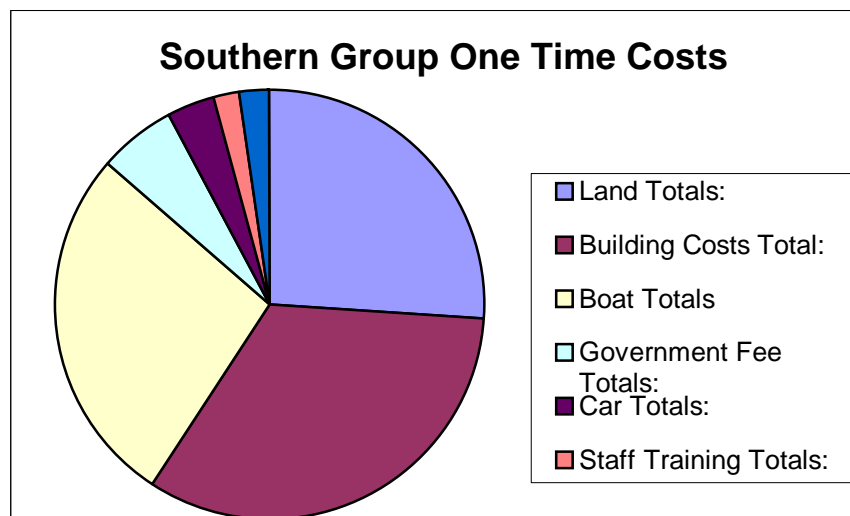
For investments made reported in currencies other than the US dollar or the Indonesian Rupiah the researcher used a similar method to discount investment over time. The annual inter-bank exchange rate average for the two currencies was calculated, and then used with the current value index to produce investments in terms of 2005 US dollars. All dollar figures in this paper are presented in 2005 US dollars.

#### 4.1.1 South Manado Group

The South Manado Group consists of the six dive operations that operate within the southern part of BNP along with the one major dive operation in the city of Manado.

<b>South Manado Group Initial Investment: Manado/Mainland</b>	
<b>Total:</b>	<b>\$3,759,076</b>

<b>Southern Group One Time Costs</b>	
<b>In 2005 Dollars</b>	
Land Totals:	26%
Building Costs Total:	33%
Boat Totals	27%
Government Fee Totals:	6%
Car Totals:	4%
Staff Training Totals:	2%
Other Costs Totals:	2%

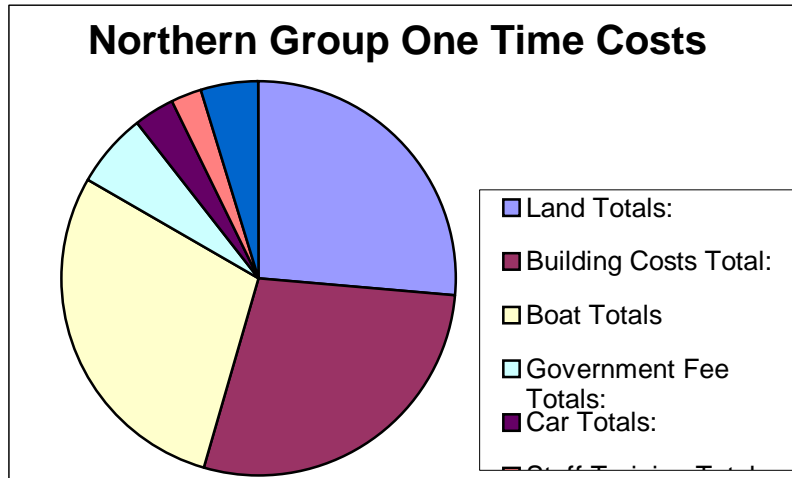


#### 4.1.2 North Manado Group

The North Manado Group consists of the five dive operations that operate within the northern part of BNP.

<b>North Manado Group Initial Investment:</b>	
	<b>Manado/Mainland</b>
<b>Total:</b>	<b>\$2,971,186</b>

<b>Northern Group One Time Costs</b>	
<b>In 2005 Dollars</b>	
Land Totals:	26%
Building Costs Total:	28%
Boat Totals	29%
Government Fee Totals:	6%
Car Totals:	4%
Staff Training Totals:	2%
Other Costs Totals:	5%

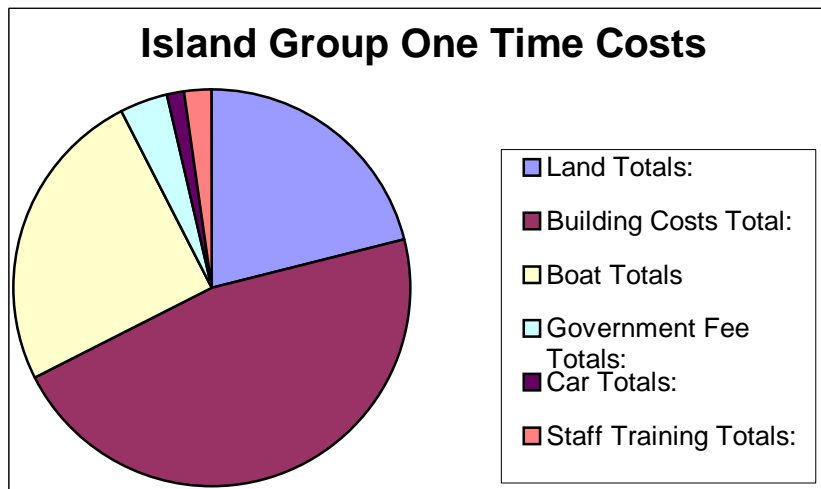


### 4.3 Island Group

The Island Group consists of the sixteen tourism operations that operate on the islands of Bunaken and Siladen.

<b>Island Group Initial Investment:</b>		
	<b>Bunaken &amp; Siladen</b>	<b>Manado &amp; Mainland</b>
<b>Total per location:</b>	<b>\$1,223,700</b>	<b>\$2,142,151</b>

<b>Island Group One Time Costs</b>	
<b>In 2005 Dollars</b>	
Land Totals:	21%
Building Costs Total:	46%
Boat Totals	25%
Government Fee Totals:	4%
Car Totals:	1%
Staff Training Totals:	2%



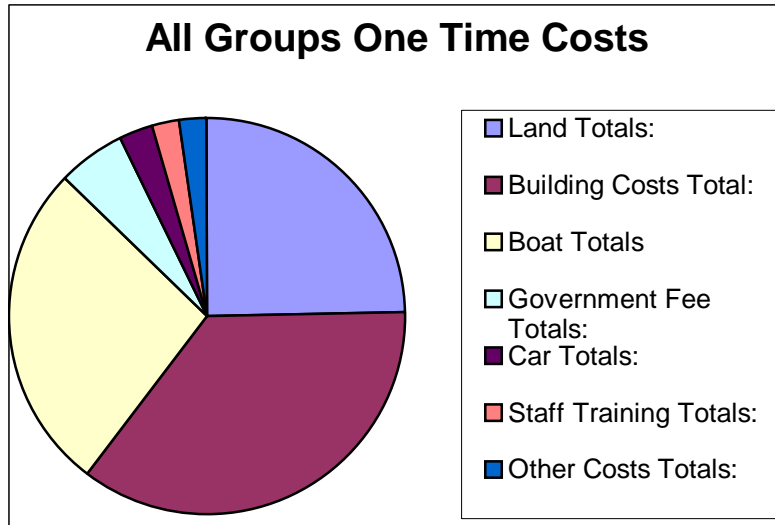
#### 4.4 Tourism Operators Total

Broken down by the area of expenditure the three groups of tourism operators have introduced direct foreign investment with the following breakdown of destination of expenditures.

Tourism Operators	Initial Investment:	
	Bunaken/Siladen	Manado/Mainland
South Manado Group		\$3,759,076
North Manado Group		\$2,971,186
Island Group	\$1,223,700	\$2,142,151
<b>Total per location:</b>	<b>\$1,223,700</b>	<b>\$8,872,413</b>

All Groups One Time Costs	
In 2005 Dollars	
Land Totals:	25%
Building Costs Total:	36%
Boat Totals	27%
Government Fee Totals:	5%
Car Totals:	3%
Staff Training Totals:	2%
Other Costs Totals:	2%





## 4.2 Secondary Tourism One Time Costs

Using information on the market price for motors, boats, water pumps, generators and maintenance tools gathered from interviews with Dive Operators allowed the researcher to create a market price index for the capitol investment of secondary tourism operators. The following spreadsheet gives the breakdown of initial investment by location and type of operator.

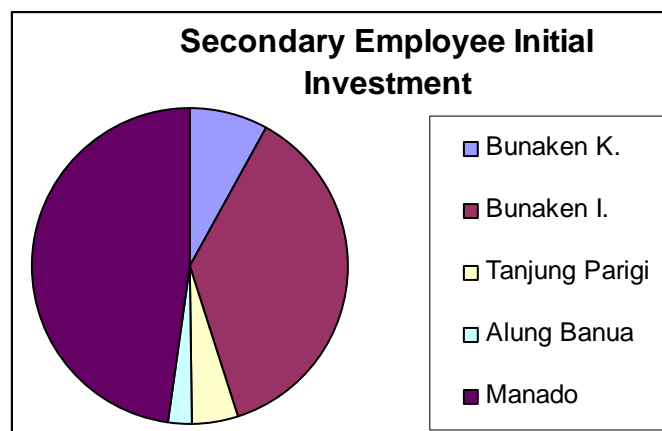
Secondary Personnel Initial Investment Cost Breakdown				
In Rp	Items	Boat Cost	Motor Costs	Investment Per Operator
Ibu Ibu on Beach	Clothing, Jewelry			200,000
Motor Repairs	Tools			400,000
Boat Builders/Renovation	Tools, Generators			3,500,000
Transport Renters	Boat, Motors	16 Juta	15 Juta	46,000,000
Water Vendors	Water Pump			3,000,000
Snorkel Tours	Pelang, Motor, Gear	1.1 Juta	4 Juta	6,100,000
Charter Dive Boat Owners	Boat, Motors	16 Juta	15 Juta	46,000,000
Catamaran Owners	Boat, Motors	8 Juta	15 Juta	38,000,000
Speed Owners	Boat, Motors	10 Juta	15 Juta	25,000,000

Secondary Tourism Initial Investment						
In Rp	Investment Per Operator	Bunaken K.	Bunaken I.	Tanjung Parigi	Alung Banua	Manado
Ibu Ibu on Beach	200,000	600,000	6,000,000	1,800,000	0	0
Motor Repairs	400,000	0	0	0	0	4,000,000
Boat Builders/Renovation	3,500,000	42,000,000	56,000,000	7,000,000	0	0
Transport Renters	46,000,000	0	0	0	46,000,000	368,000,000
Water Vendors	3,000,000	0	3,000,000	3,000,000	0	0
Snorkel Tours	6,100,000	24,400,000	6,100,000	0	0	0

Charter Dive Boat Owners	46,000,000	0	138,000,000	0	0	184,000,000
Catamaran Owners	38,000,000	76,000,000	456,000,000	76,000,000	0	228,000,000
Speed Owners	25,000,000	0	0	0	0	75,000,000
<b>Total Rp:</b>		<b>143,000,000</b>	<b>665,100,000</b>	<b>87,800,000</b>	<b>46,000,000</b>	<b>859,000,000</b>

#### 4.2.1 Breakdown of Destination of One Time Costs

<b>Destination of Secondary Tourism Initial Investment</b>		
	Bunaken	Manado/Mainland
Total in Rp	Rp343,500,000	1,456,900,000
Total in \$US	\$36,350	\$154,170



## 5. Running Costs

Running costs are perhaps the most relevant area of expenditure, because, as opposed to one-time costs, they are a guaranteed annual expenditure with tourism levels held as a constant. Though not quantified, it is notable that management of many larger tourism operations stressed that even through times of low tourism activities, including the demand side shocks of the Bali bombing, SARS, and the “bird flu” they retained all of their staff at normal wage levels.

Running costs are presented in Rupiah and are examined in three sections: Dive Operators, BNPMAB, and Secondary Employment. Each section breaks down total expenditure by destination, then by jobs, wages, and benefits.

### 5.1 Dive Operators

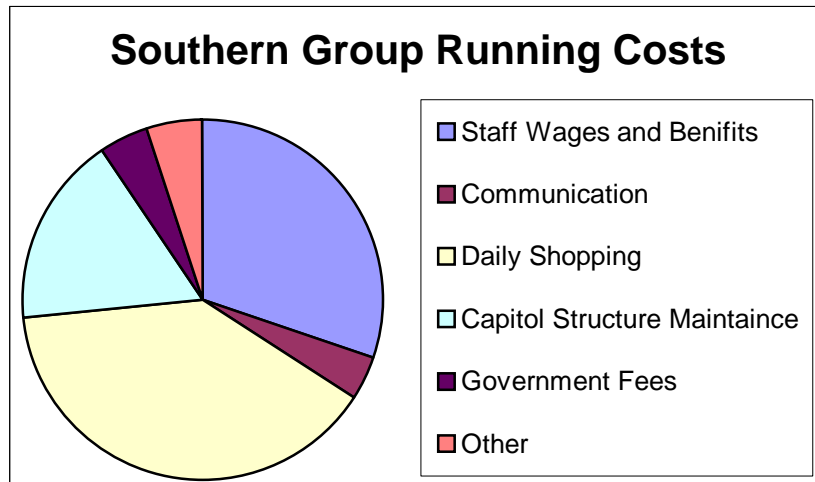
The largest proportion of running costs comes from the annual expenditures of the tourism operators. Running Costs for Dive Operators have been divided into South and North of Manado, and the Islands of BNP.

#### 5.1.1 South Manado Group

The South Manado Group consists of the six dive operations that operate within the southern part of BNP along with the one major dive operation in the city of Manado.

<b>South Manado Group</b>	<b>Running Costs:</b>	
	<b>Bunaken/Siladen</b>	<b>Manado/Mainland</b>
<b>Total:</b>	<b>Rp281,000,000</b>	<b>Rp12,945,106,667</b>

<b>Southern Group</b>	<b>Running Costs</b>
<b>in 2004 Rp</b>	
Staff Wages and Benefits	30%
Communication	4%
Daily Shopping	39%
Capitol Structure Maintenance	17%
Government Fees	4%
Other	5%



Staff demographics have been broken down by village of current residence. The vast majority of current residents of villages are originally from the village in which they currently reside, with a few examples of people marrying into a village and even fewer moving in from another village.

Village of Origin for Dive Tourism Employees	Total Employees	Bunaken K.	Bunaken I.	Molas	Siladen	Tanjung Parigi	Alang Banua	Manado Tua	Manado/Tomohon	Popo	Tanawanko	Mokupa	Other
South Manado Group	223	1	0	8	9	0	0	0	156	7	30	7	5

In an effort to simplify a representation of the variety of wage levels for current uses the wages have been averaged for all employees. Running costs include the wages and benefits for all employees. Benefits may include health insurance, retirement, severance,

Christmas or Adul Fitri bonus, housing, meals, marriage bonus, death bonus, and newborn bonus.

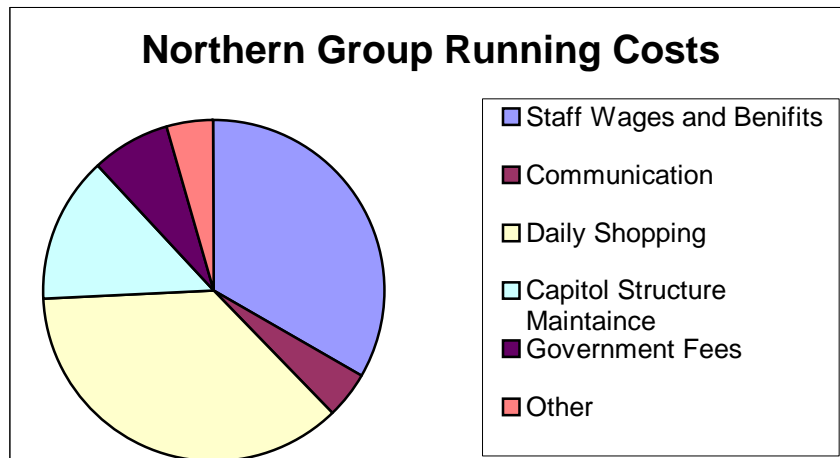
<b>Mainland South Expenditures on Staff</b>							
	Total Staff	Average Monthly Wage + Benefits	Wage and Benefits	Number of Staff Housed	Housing Costs	Meals	Cost of Meals
Monthly Expenditure in Rp	224	1,383,857	309,983,997	53	15,900,000	14,880	66,960,000
Annual Expenditure			3,719,807,964		190,800,000	178,560	803,520,000
Total Annual Expenditure: Rp 4,714,127,964							

### 5.1.2 North Manado Group

The North Manado Group consists of the five dive operations that operate within the northern part of BNP.

North Manado Group	Running Costs:
	Manado/Mainland
<b>Total:</b>	<b>Rp7,388,755,333</b>

<b>Northern Group Running Costs</b>	
<b>in 2004 Rp</b>	
Staff Wages and Benefits	33%
Communication	4%
Daily Shopping	36%
Capitol Structure Maintenance	14%
Government Fees	8%
Other	4%



Village of Origin for Dive Tourism Employees	Total Employees	Village:											
		Bunaken K.	Bunaken I.	Molas	Siladen	Tanjung Parigi	Alang Banua	Manado Tua	Manado/Tomohon	Popo	Tanawanko	Mokupa	Other
North Manado Group	136	0	0	7	0	0	0	0	75	0	0	0	54

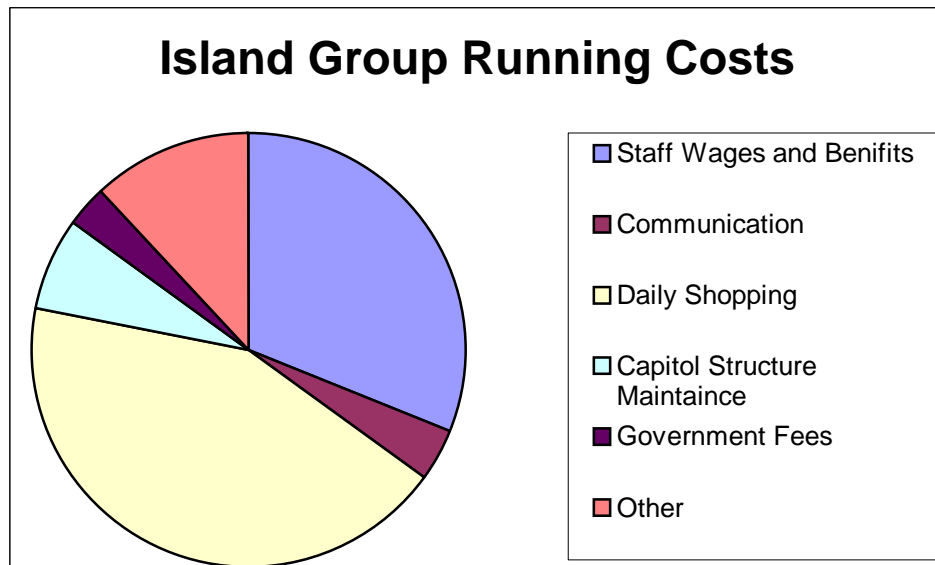
Mainland North Expenditures on Staff							
	Total Staff	Average Monthly Wage + Benefits	Wage and Benefits	Number of Staff Housed	Housing Costs	Meals	Cost of Meals
Monthly Expenditure in Rp	136	1,470,882	200,040,000	46	13,800,000	8,280	37,260,000
Annual Expenditure			2,400,480,000		165,600,000	99,360	447,120,000
Total Annual Expenditure: Rp 3,013,200,000							

### 5.1.3 Island Group

The Island Group consists of the sixteen tourism operations that operate within the island of Bunaken and Siladen.

Island Group	Running Costs:	
	Bunaken/Siladen	Manado/Mainland
<b>Total:</b>	<b>Rp5,410,032,516</b>	<b>Rp11,050,352,406</b>

<b>Island Group Running Costs</b>	
<b>in 2004 Rp</b>	
Staff Wages and Benefits	31%
Communication	4%
Daily Shopping	43%
Capitol Structure Maintenance	7%
Government Fees	3%
Other	12%



Village of Origin for Dive Tourism Employees	Total Employees	Bunaken K.	Bunaken I.	Molas	Siladen	Tanjung Parigi	Alang Banua	Manado Tua	Manado/Tomohon	Popo	Tanawanko	Mokupa	Other
Island Group	377	94	19	0	75	65	28	2	94	0	0	0	0

<b>Island Group Expenditures on Staff</b>							
	Total Staff	Average Monthly Wage + Benifits	Wage and Benifitis	Housing	Housing Costs	Meals	Cost of Meals
Monthly Expenditure in Rp	376	954,555	358,912,577	145	43,525,000	27,459	123,563,250

Annual Expenditure	4,306,950,924	522,300,000	329,508	1,482,759,000
Total Annual Expenditure: Rp 6,312,009,924				

## 5.2 BNPMAB

The BNPMAB manages BNP using funds that come from the park entrance fee, and from outside donations and grants. Over the years money has come in from abroad from sustainable tourism efforts and multiuse conservations efforts. BNPMAB funds are distributed through a variety of mechanisms to the communities of the park and surrounding areas, including the three primary areas of inquiry: Manado and South of Manado, North of Manado and the Islands of Bunaken and Manado Tua.

Mechanisms of resource allocation include direct employment, direct transfer of funds, bonuses, and financial support for community organizations.

### 5.2.1 Employment

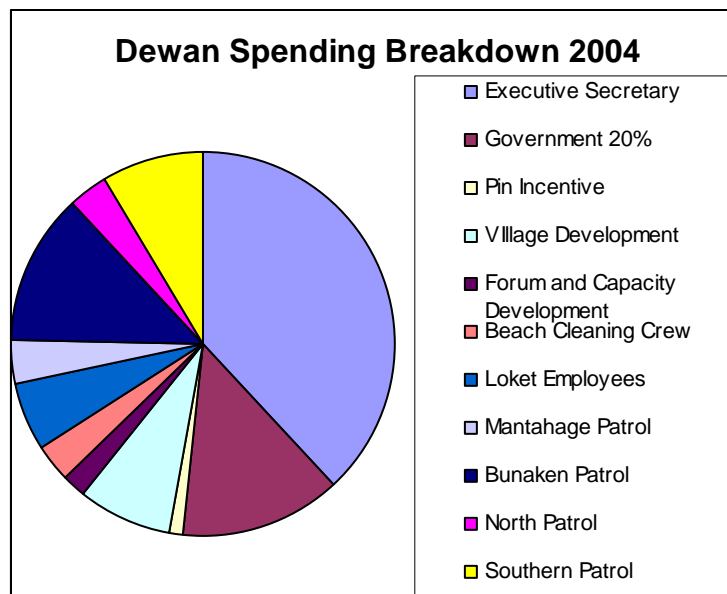
As the seat of the BNPMAB Office, the city of Manado reaps substantial benefits from employment of people that are involved in BNP management. Of the many types of employment the primary categories and related annual expenditures are following:

BNPMAB Employees by Job and Location	Manado Area			Bunaken			Mantehage	
	South	Manado	North	Bunaken Christian	Bunaken Islam	Tanjung Parigi	Alung Banua	
Office Workers		7						
Field Staff		3						
Patroli	18		10	8	5	5	5	15
PolAir	2	4						
Jagawana	2	4	2					2
PolSec								2
Boat Staff	1		1	2	1		1	1
Beach Cleaners				5		6		
Loket				2		1	2	
Pokja							1	
<b>Total:</b>	<b>23</b>	<b>18</b>	<b>13</b>	<b>17</b>	<b>6</b>	<b>12</b>	<b>9</b>	<b>20</b>

### 5.2.2 Expenditures

Expense Summary for 2004 (in millions of Rp)  
Source: BNPMAB 2004 Financial Report

	Executive Secretary	Government 20%	Village Development	Forum and Capacity Development	Beach Cleaning Crew	Loket Employees	Mantahage Patrol	Bunaken Patrol	North Patrol	Southern Patrol
	812	286	172	41	69	124	74	272	70	185
Percentage of total Budget: 2105 million	38.6%	13.6%	8.2%	1.9%	3.3%	5.9%	3.5%	12.9%	3.3%	8.8%
Percentage of Pin Revenue: 1330 million	61.1%	21.5%	12.9%	3.1%	5.2%	9.3%	5.6%	20.5%	5.3%	13.9%



The destination of expenditures from the BNPMAB are broken down by geographical location. In instances of multiple wage earners from different locations where the wage level is not known per individual the wage has been averaged.

BNPMAB	Running Costs:		
	Bunaken/Siladen	Manado/Mainland	Other Islands
<b>Total:</b>	<b>Rp481,000,000</b>	<b>Rp1,472,000,000</b>	<b>Rp159,000,000</b>

### 5.3 Secondary Employment

Within the group of Secondary Employment, figures on average wages and benefits were not available. For that reason the number and breakdown of types of jobs along with the village of origin for the employee are presented alone. Assumptions about wages must be given within a spectrum of high and low wage estimates.

#### Total Secondary Employees:

Secondary Personnel	Total	Bunaken K.	Bunaken I.	Tanjung Parigi	Alban	Manado

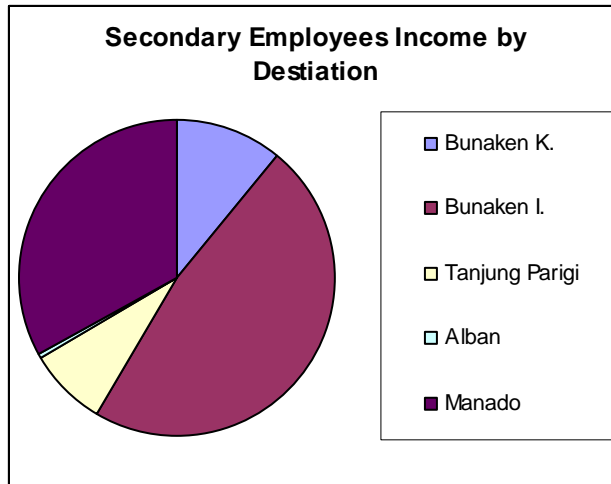


Ibu Ibu on the Beach	42	3	30	9	0	0
Motor Repairs	10	0	0	0	0	10
Boat Builders/Renovation	30	12	16	2	0	0
Transport Renters	9	0	0	0	1	8
Water Vendors	2	0	1	1	0	0
Snorkel Tours	5	4	1	0	0	0
Charter Dive Boat Owners	7	0	3	0	0	4
Charter Dive Boat Staff	14	0	6	0	0	8
Catamaran Employees	44	4	24	4	0	12
Catamaran Owners	22	2	12	2	0	6
Speed Owners	3	0	0	0	0	3
Speed Staff	6	0	0	0	0	6
<b>Total:</b>	<b>194</b>	<b>25</b>	<b>93</b>	<b>18</b>	<b>1</b>	<b>57</b>
<b>Percentage of Total:</b>		12.89%	47.94%	9.28%	0.52%	29.38%

### 5.3.2 Expenditures (Incomes)

<b>Secondary Personal Monthly Wage Estimates</b>						
	<b>Total</b>	<b>Bunaken K.</b>	<b>Bunaken I.</b>	<b>Tanjung Parigi</b>	<b>Alban</b>	<b>Manado</b>
Owners	32	2	15	2	0	13
High Estimate (3 Million)	96,000,000	6,000,000	45,000,000	6,000,000	0	39,000,000
Low Estimate (2 Million)	64,000,000	4,000,000	30,000,000	4,000,000	0	26,000,000
Employees	162	23	78	16	1	44
High Estimate (800,000)	129,600,000	18,400,000	62,400,000	12,800,000	800,000	35,200,000
Low Estimate (500,000)	81,000,000	11,500,000	39,000,000	8,000,000	500,000	22,000,000
High Totals Monthly	225,600,000	24,400,000	107,400,000	18,800,000	800,000	74,200,000
Low Totals Monthly	145,000,000	15,500,000	69,000,000	12,000,000	500,000	48,000,000
High Total Annual	2,707,200,000	292,800,000	1,288,800,000	225,600,000	9,600,000	890,400,000
Low Total Annual	1,740,000,000	186,000,000	828,000,000	144,000,000	6,000,000	576,000,000

<b>Secondary Employees Annual Expenditure Destination</b>		
	<b>Bunaken/Siladen</b>	<b>Manado/Mainland</b>
Total in Rp:	1,490,400,000	733,200,000



## 5.4 Government

In addition to the incentive for the government given from the entrance pin there are additional revenues from other forms of tax. The immigration fees and business licenses have been introduced in the running costs of Dive Operations. Another source of revenue for the local government is the visa fee collected at the airport, which is estimated below. There remain the more difficult to quantify hotel and restaurant taxes which are only estimated at a conservative Rp50,000 per person.

### 5.4.1 Tax Estimates

Tourist Taxes Estimates	Percentage of Tourists	For 10,000 Tourists
25\$ Visa Fee (Rp 230,000)	90%	2,070,000,000
20,000 Domestic Airport Tax	40%	80,000,000
75,000 International Airport Tax	60%	450,000,000
Hotel and Restaurant Tax of Rp 50,000	100%	500,000,000
BNPMAB 20% Incentive		286,000,000
NSWA Tax Expenditures		1,665,000,000
<b>Conservative Total</b>		<b>Rp 5,051,000,000</b>

## 6. Distribution of Tourism Benefits

Perhaps the most interesting question pursued in this report is the distribution of dive-tourism related jobs, wages, and benefits across the spectrum of local economies. The distribution follows from the Running Costs (section 5) by taking lump sum expenditures and evaluating their local destinations. Distribution analysis is broken down in the following categories: Tourism, BNPMAB and Government. Each category examines jobs, wages and benefits.

### 6.1 Jobs

<b>Total and Percentage Employment in Dive Industry, Secondary Tourism, and DPTNB</b>
---

Location	Total:	Bunaken K.	Bunaken I.	Tanjung Parigi	Alung Banua	Siladen	Manado Tua	Manado / Mainland
Workforce		443	224	137	222	101	818	157,654
Primary Tourism Employment	736	95	19	65	28	84	2	443
Secondary Tourism Employment	194	25	93	18	1			57
BMPMAB Employees	133	17	6	12	9	5	10	74
Percentage		30.93%	52.68%	69.34%	17.12%	88.12%	1.47%	0.36%

Using average wage levels for employees from Primary, Secondary and BNPMAB and annual expenditures for the Dive Operations that go the villages on Bunaken the following estimation of the annual total expenditures per villages is calculated.

BNPMAB Total Spending Per Village on Bunaken		Bunaken Christian	Bunaken Islam	Tanjung Parigi	Alung Banua
<b>Staff</b>	Total				
Patrol	272,000,000	94,608,696	59,130,435	59,130,435	59,130,435
Boat Staff	35,428,572	17,714,286	8,857,143	0	8,857,143
Beach Cleaners	69,000,000	31,363,635	0	37,636,362	0
Pin Sales (Loket) Pokja	62,000,000	24,800,000	0	12,400,000	24,800,000
					12,000,000
<b>Projects</b>					
Forum and Capacity Development	41 Million total all Villages	1,366,667	1,366,667	1,366,667	1,366,667
Village Development	172 Million total all Villages	573,333	573,333	573,333	573,333
<b>Total Rp:</b>	458,188,570	170,426,617	69,927,578	111,106,797	106,727,578

## 6.2 Initial Investment

Taking the total from primary and secondary initial investments give the following:

Total Initial Investment from Dive Operators and Secondary Tourism		
	Bunaken/Siladen	Manado/Mainland
Primary Tourism	11,502,780,000	83,400,682,200
Secondary Tourism	343,500,000	1,456,900,000
<b>Total Rp</b>	<b>Rp11,846,280,000</b>	<b>Rp84,857,582,200</b>

Total \$US (Rp 9400 to \$1)	\$1,260,243	\$9,027,402
-----------------------------	-------------	-------------

Using the reserve ratio for banks in Indonesia, 15%, allows one to use the Money Multiplier to calculate the total realized impact on a local economy:

$$\text{Initial Investment} * 1/(\text{Reserve Ratio}) = \text{Total Economic Impact}$$

$$\$10,236,631 * 1/(.15) = \$68,577,540$$

### 6.3 Running Costs

Taking the total from primary and secondary tourism, BNPMAB receipts and Government Tax receipts gives the following:

<b>Total Running Expenditures from Dive Operators, Secondary Tourism, BNPMAB and Government Funded by Dive Tourism</b>		
	<b>Bunaken/Siladen</b>	<b>Manado/Tomohon</b>
Primary Tourism	5,765,389,008	31,568,212,470
Secondary Tourism	1,490,400,000	733,200,000
BNPMAB	481,000,000	1,631,000,000
Government Tax Receipts		505,100,000
Total Rp	Rp7,736,789,008	Rp34,437,512,470
Total \$US (Rp 9400 to \$1)	\$823,063	\$3,663,565

Using the reserve ratio for banks in Indonesia, 15%, allows one to use the Money Multiplier to calculate the total realized impact on a local economy:

$$\text{Running Cost} * 1/(\text{Reserve Ratio}) = \text{Total Economic Impact per Year}$$

$$\$4,486,628 * 1/(.15) = \$29,910,853$$

## 7. Conclusions

Conclusions from this study may be broken down into two fields: the impact of dive tourism on the islands of Manado Tua, Bunaken, and Siladen, and the impact of tourism on the economy of the larger city Manado.

### 7.1 Island Impact

Looking first at the three islands of Manado Tua, Bunaken and Siladen the differences in the penetration of tourism is remarkable. Islands that have tourism operators have experienced massive shifts in employment demographics, with the tourism service economy the primary driving force in many communities. The three most interesting results of this study concern jobs, wages and total foreign expenditures.

#### 7.1.1 Jobs

On the two islands of Bunaken and Siladen tourism has replaced traditional sources of employment for the majority of the workforce in Siladen (83%), Tanjung Parigi (69%), and Bunaken's Muslim community (53%). Interestingly enough, within Desa Bunaken the Muslim community holds a disproportionate number of the secondary employment jobs, 48%, while only comprising 22% of the total island workforce. Though not the majority of the workforce, a compelling percentage of the Desa Bunaken Christian community works in tourism as well. The lone village that has relatively few members in the tourism workforce is Alung Banua. Even there 17% of the workforce in a single sector is a commanding source of employment.

A remarkable contrast to Bunaken and Siladen is the Island of Manado Tua. Though recently construction on a homestay has begun, the percentage of the total workforce engaged in tourism at less than 1% pales in comparison with Bunaken and Siladen. Not surprisingly the employment patterns on Manado Tua show a greater reliance on resource extraction in the form of deep water and coral fishing. The percentage of the Manado Tua workforce engaged in fishing has been recorded as high as 47% on some days, while the high mark for Bunaken is 28%. Additionally it should be noted that the overwhelming majority of fishing employment (at times 88% in Bunaken's Christian community) comes from the off shore Funae. For conservationists the conclusions about a shift of the dependence on fishing to non-extractive means of employment are undeniable, while for economist the benefits of a diverse and sustainable economy are commendable.

### **7.1.2 Wages**

For the communities engaged in tourism there are substantial financial benefits. In addition to a steady wage, the number and quality of benefits in comparison with the cost of living suggest a great deal of expendable income.

Results taken from the home economy surveys suggest a high cost of living of Rp 800,000 per month per household in Bunaken's Christian community, while wage and benefit compilations from the island based dive industry show expenditures on staff at an average of Rp 950,000 per month before calculating additional benefits of food, and housing. For a family that is not investing in structural improvements the conclusions are clear; wages from primary tourism employment are above the cost of living i.e. a living wage.

### **7.1.3 Additional Fiscal Injection**

Another way of looking at the impacts of dive tourism on the local economies of the islands comes under the heading of total foreign expenditure, or foreign fiscal injection. Here a summation of the initial and annual expenditures for Bunaken and Siladen from dive tourism compared side by side with Manado Tua reveals the weight of the economic impact.

Taking data from above, the total initial expenditure on the islands of Bunaken and Siladen from primary and secondary tourism were on the order of \$1,567,200 adjusted 2005 dollars. The same data reveals no initial investment of note for Manado Tua. Here

the cause is apparent. There are over 20 dive operations or homestays on Bunaken and Siladen, and only one under construction on Manado Tua.

Secondly, the annual income and expenditures from dive operations, secondary tourism operations and BNPMAB sum to \$823,000 adjusted 2005 dollars. The sum for Manado Tua, with sources of tourism money coming from two primary employees and 10 secondary employees is not within a factor of one thousand.

## **7.2 Manado and Mainland**

Looking at the economic impacts of dive tourism on the larger economy of the city of Manado the penetration of tourism is still remarkable, though a smaller percent of the total economy. As seen in the Manado Jobs section (3.1.2) the service sector has overtaken trade in recent years to become the single largest sector of the Manado economy. Without additional data about the Manado economy it is impossible to determine what portion of that comes from dive tourism, however, given the fact that the majority of dive operations have opened in the last six years, a positive relationship between dive tourism and Manado growth is certain. It merely remains to outline known relationships.

### **7.2.1 Jobs**

Clearly, the percentage of the workforce in dive tourism is much lower in Manado than the island economies; however, indirect job creation is much greater for two reasons. First, included in this study were only the dive operations, not the hotels and restaurants that support and are supported by them. With ten substantial hotels and dozens of restaurants serving dive operation clients many jobs are undercounted as dive tourism jobs. Additionally, annual non-wage expenditures for dive operations are nearly \$4,000,000 adjusted 2005 dollars or about Rp 4,000,000,000 per year. Those expenditures for running costs at grocery stores, fuel stations, cement factories, hardware stores, furniture stores and the like also create and sustain jobs. Once these additional effects are taken into consideration the real number of jobs created by dive tourism is in excess of the 1,063 jobs on the islands and mainland presented here. The results of this study are not pointless; they are merely base, a starting point for estimating wider impacts.

### **7.2.2 Additional Fiscal Injection**

In addition to the jobs are the initial investments of \$9,000,000 adjusted 2005 dollars. As shown with the money multiplier (section 6.2) the real impact on an economy of such an investment is on the order of \$60,000,000. Though there is no non-tourism city to use as a foil, as was the case with Bunaken and Manado Tua, a similar discrepancy in economic impact follows.

Overall the impact of dive tourism on the economies of Manado and the island is dramatic and positive. With over a thousand identifiable jobs created, an average wage well above the cost of living, impressive foreign investment, and a constant source of tax revenue, dive tourism is a sustainable alternative source of income and employment

capable of supporting hundreds of families, and a dynamic component of a diverse economy.

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**Appendix A**

**Forms Used  
Dive Operation Survey Form**

**Survey Number** \_\_\_\_\_

**Place** \_\_\_\_\_ **Name of Interviewer** \_\_\_\_\_

You are being asked to participate in a survey on the economic impacts of Bunaken National Park on local communities. This questionnaire aims to elicit economic information about the number of jobs, the amount of money, the number of persons housed and the number of additional resources or projects directed to local communities as a result of being in the park. The goal of this survey is not to estimate profitability, inquire about vacancy rates, or to otherwise probe private business concerns. You will notice no questions about specific salaries or occupancy. Effort has been made to get general numbers and estimates to protect the privacy of the business community. Your name and information will be detached from this survey and all numbers will be summed with other local businesses to keep the information of individuals confidential. Results of this survey will be used in community meetings to address actual economic benefits to local communities. May I interview you?

Questions for Bungalow Owners and Dive Operators:

<b>One Time Expenditures</b>		<b>Manado</b>	<b>Bunaken:</b>	
<b>Year</b>	<b>Item</b>		<b>Capital</b>	<b>Labor</b>
<b>Land</b>				
	Purchases	_____		
	Rentals	_____		
<b>Building Costs</b>				
	Bungalows	_____		
	Furnishings	_____		
	Office Building	_____		
	Furnishings	_____		
	Kitchen	_____		
	Furnishings	_____		
	Equipment Shop	_____		
	Furnishings	_____		
	Staff Houses	_____		
	Furnishings	_____		
	Other	_____		
	Water infrastructure	_____		
	Sewage	_____		

infrastructure

---

**Boats**

Number of Boats

---

Wood

---

Labor

---

Motors

---

Other

---

**Government Fees**

**(Manado)** Initial Residency Papers

---

Initial Business license

---

"Envelopes"

---

**(Island)** Initial Residency Papers

---

Initial Business license

---

"Envelopes"

---

**Staff Training**

Dive masters

---

Severance

---

Other

---

**Vehicles**

Vans and Trucks

---

**Power Connection**

Hardwire

---

"envelopes"

---

PLN

---

**Other Expenses**

---

---

Running Costs		Month	Year totals	
			for: Bunaken	Manado
Year	Item			
<b>Staff</b>				
	Wages			
	School Uniforms and Fees			
	Medical Care/Insurance			
	Dive Certification Updates			
	Uniforms			
	Rain Gear			
	Weddings and Funerals			
	Subcontract Work			
	Other			
<b>Capital structure</b>				
	Boat Repair			
	Paint			
	Hull Maintenance			
	Other			
	Motor Repair and Parts			
	Building Repair			
	Capitol			
	Labor			
<b>Daily Shopping</b>				
	Fluids			
	Diesel			
	Gasoline			
	Oil			
	Normal Water			
	Aqua			
	Solar			
	Kerosene			
	Other			
	Food for Staff and Guests			
	Fish			
	Fruits			
	Vegetables			
	Cookies			
	Rice			
	Coffee/Sugar/Tea			
	Cooking Oil			
	Other			
	Staff Total:			
	Food for Guests			

**Community Donation**

Sumbangan \_\_\_\_\_  
Church Donations \_\_\_\_\_  
Miscellaneous \_\_\_\_\_  
Other \_\_\_\_\_

**Communications Costs**

Land Line \_\_\_\_\_  
Internet \_\_\_\_\_  
Cell Phones \_\_\_\_\_  
Other \_\_\_\_\_

**Transportation Costs**

Cars to Airport \_\_\_\_\_  
Cars to Other Locations \_\_\_\_\_

**Government Taxes**

Manado Business Tax \_\_\_\_\_  
Foreign Person Tax \_\_\_\_\_  
"Envelopes" \_\_\_\_\_

Bunaken Business Tax \_\_\_\_\_  
Foreign Person Tax \_\_\_\_\_  
"Envelopes" \_\_\_\_\_

**Other Expenses**

\_\_\_\_\_  
\_\_\_\_\_

**Staff Demographics**

**Number of Staff:**

Manado	_____
Tomohon	_____
Bunaken	_____
Siladen	_____
Manado	_____
Tua	_____
Mantahage	_____
Nain	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
<b>Total:</b>	_____

## Boat Survey Form

**Tanggal** \_\_\_\_\_

Recorded ( )

**Desa** \_\_\_\_\_

**Jam** \_\_\_\_\_

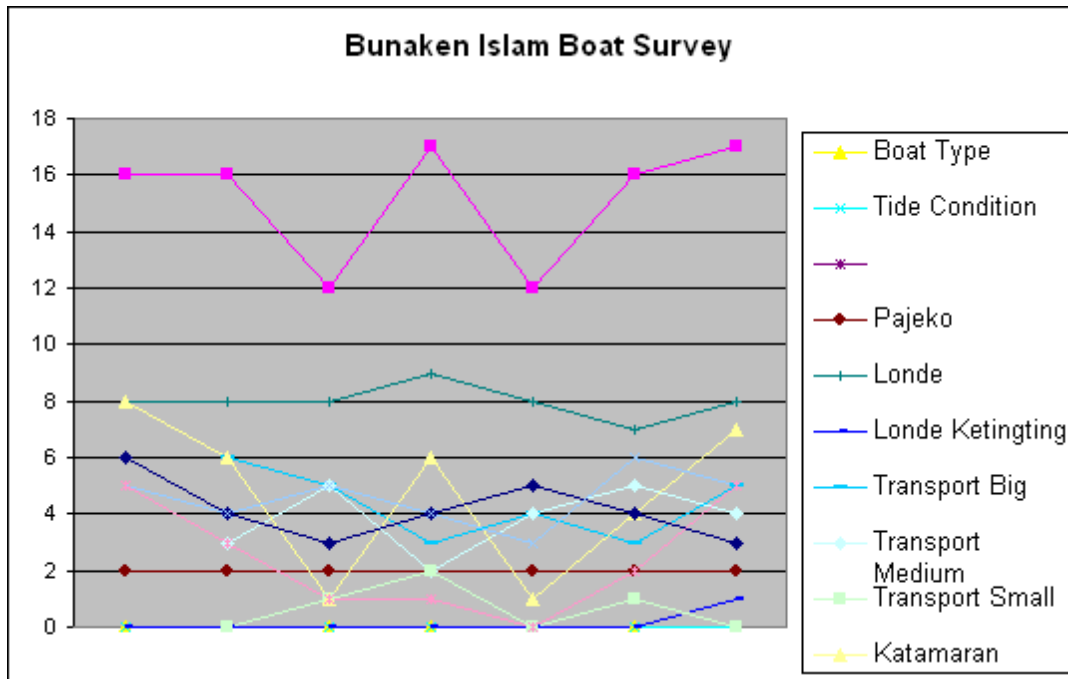
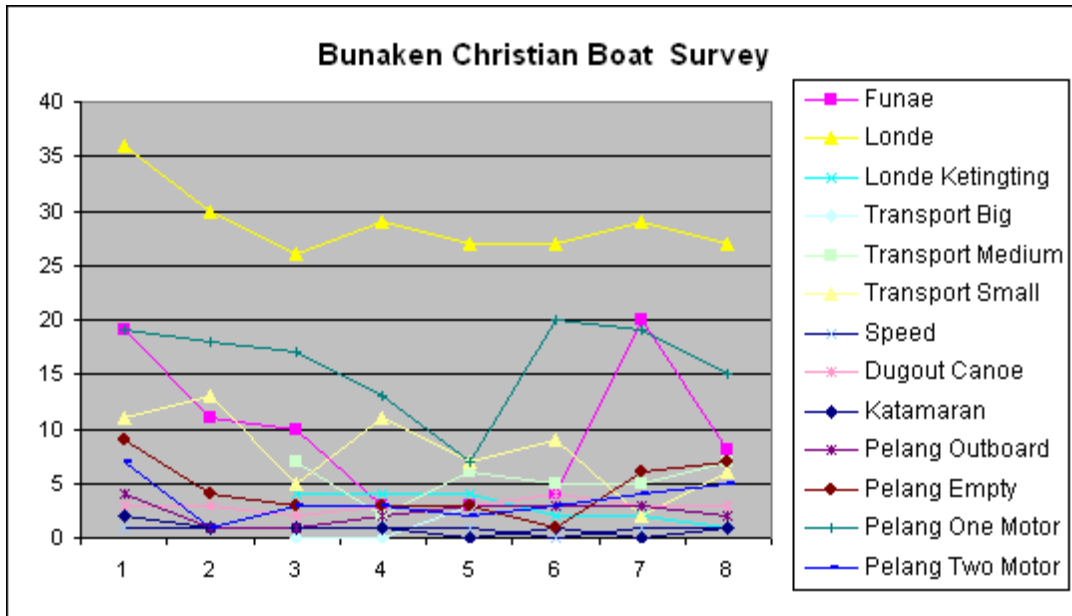
**Laut**            **Besar    Sedang    Kecil**

**Macam**            **Berapa**

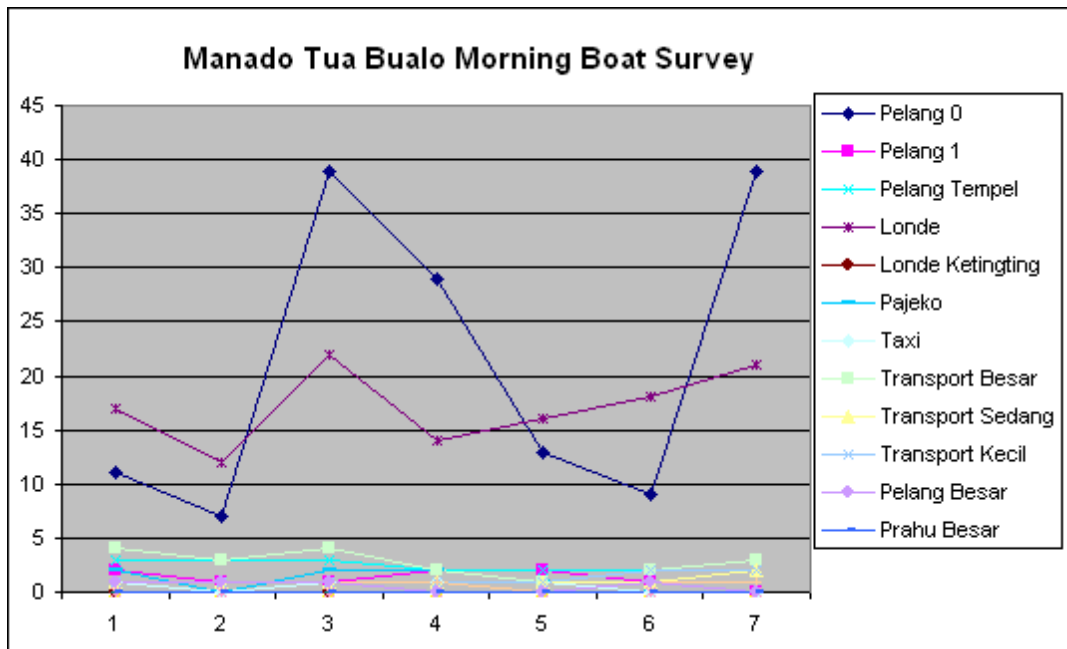
Pelang 0	_____	
Pelang 1	_____	
Pelang 2	_____	
Pelang Tempel	_____	
Londe	_____	
Londe Ketingting	_____	
Funae	_____	
Katamaran	_____	
Pajeko	_____	
Taxi	_____	
Transport Besar	_____	
Transport Sedang	_____	
Transport Kecil	_____	
Sped	_____	
Bolotu	_____	
Perbedaan	_____	
Perbedaan	_____	



**Appendix B**  
**Boat Usage Survey Results**







**Appendix C**  
**Conversion Calculator**

**Consumer Price Index, 1980-200**

CPI-U  
 Base year is chained;  
 1982-1984 = 100

<b>Year</b>	<b>Annual Average</b>	<b>Annual Percent Change (Rate of Inflation)</b>
1981	90.9	10.3
1982	96.5	6.2
1983	99.6	3.2
1984	103.9	4.3
1985	107.6	3.6
1986	109.6	1.9
1987	113.6	3.6
1988	118.3	4.1
1989	124	4.8
1990	130.7	5.4
1991	136.2	4.2
1992	140.3	3
1993	144.5	3
1994	148.2	2.6
1995	152.4	2.8
1996	156.9	2.9
1997	160.5	2.3
1998	163	1.6
1999	166.6	2.2
2000	172.2	3.4
2001	177	2.8
2002	179.9	1.6
2003	184	2.3
2004	188.9	2.7
2005*	195.3	3.4

\*An estimate for 2005 is based on the change in the CPI from fourth quarter 2003 to fourth quarter 2004.