

Community Perceptions of Marine Protected Area Management
in Indonesia

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Participants of perception monitoring workshop in Berau



An interview session in Komodo

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1. Background

1.1 Summary of the goals of perception monitoring

The Nature Conservancy's Coral Triangle Center (TNC) has established marine conservation programs in four extremely bio-diverse areas in Indonesia: Komodo National Park (KNP) (West Flores), Wakatobi National Park (WNP) (Southeast Sulawesi), Berau district (East Kalimantan) and Raja Ampat district (Western Papua). In these areas, TNC works with local fishing communities as well as government agencies to stop deterioration of marine ecosystems caused by over-fishing, destructive fishing, and various other threats. The primary strategy towards better governance of marine resources is the establishment of Marine Protected Areas (MPAs), where MPAs are understood as natural marine areas where use is managed (cf. IUCN definition). In Indonesia, MPAs are a relatively new concept, and therefore many coastal people in remote areas are still unfamiliar with this management tool. On the other hand, coastal people may have excellent understanding on the status of natural resources, and they may have concerns about the way these resources are used. To assess trends in community perceptions of resource status, resource use and MPA management, TNC plans to conduct a monitoring program for community perceptions. As a first step, independent interviewers contracted by TNC conducted a baseline survey in 2005, results of which are summarized in this report. TNC will use this knowledge on trends in community perceptions to inform adaptive management and identify priorities for its community outreach programs.

The four study areas differ not only in ecological and socio-economic characteristics, but also in management framework. KNP and WNP are officially gazetted areas, managed by the national Ministry of Forestry. In contrast, Berau district was declared by the local government, and here the local government will be largely responsible for managing the area. Likewise, in Raja Ampat district, the local government rather than a central government agency is taking initiatives towards MPA establishment. In Raja Ampat, however, this process is less advanced than in Berau. Furthermore, Raja Ampat is much

larger than the other three areas, and therefore marine resources in Raja Ampat are best managed through a network of MPAs rather than through one single MPA.

1.2 Objective of the perception monitoring program

The objective of the perception monitoring program is two fold:

- a) To describe trends in community's attitudes and perceptions of resource status, resource use, environmental and/or park regulations, and stakeholder organizations
- b) To acquaint managers with attitudes, perceptions and behaviors of the communities residing near and interacting with these resources. Managers will use this information to inform adaptive management and to measure success of stakeholder consultation mechanisms and awareness programs

1.3 Description of study areas

Komodo National Park

Komodo National Park was declared in 1980 to conserve the unique Komodo dragon *Varanus komodoensis* and its habitat. It is located off the western tip of the Indonesian Island of Flores. In 1986, the park was also designated a World Heritage Site and a Man and Biosphere Reserve by UNESCO (United Nations Educational, Scientific and Cultural Organization). The Park encompasses nearly 200,000 hectares of land and sea. The marine component of the park harbors one of the world's richest marine environments that includes more than 1,000 species of fish, 260 species of reef-building corals, and 70 species of sponges, as well as dolphins, whales, manta rays and sea turtles. In 1995, the Ministry of Forestry's Directorate-General for Forest Protection and Nature Conservation invited The Conservancy to assist its subsidiary, the Komodo National Park Authority, with conservation management of the Park's coastal and marine ecosystems. Since that time, The Conservancy, together with the Park authority and local communities, has worked to protect the Park's diverse ecosystems from destructive fishing practices and over-fishing, practices which have severely damaged the park's coral reefs and fish populations. The Komodo National Park project is The Conservancy's longest running marine project in Indonesia. A number of on-site conservation lessons learned over the period 1996 to 2005 are currently being applied at The Conservancy's other marine sites

including Wakatobi, Derawan and Raja Ampat. The successful abatement of blast fishing inside the Park, which resulted in a 60 percent increase in hard coral coverage, has become a textbook example of conservation success.

Wakatobi National Park

Wakatobi (an acronym for the four main islands of Wangi-Wangi, Kaledupa, Tomia, and Binongko, also known as the Tukang Besi Islands) is an archipelago that lies off the southeastern tip of the Indonesian island of Sulawesi. In terms of diversity of marine life, geographic scale, and reef condition, it ranks as one of the highest priorities for marine conservation in Indonesia. It is also a centerpiece for a network of mutually-replenishing MPAs situated along the southeastern coast of Sulawesi. Due to strong upwelling that brings up cooler waters from the Flores Sea in the south, Wakatobi is relatively protected from the bleaching events that have affected many reefs throughout the world. Destructive fishing and over-fishing pose significant threats to Wakatobi's reef communities and to the livelihood of people who depend on these reefs. In 1996, the government of Indonesia declared the islands and the waters surrounding them as a protected area that covers a total of 1.39 million hectares. The objective of this MPA is to protect coastal and marine ecosystems to ensure that these ecosystems will continue to provide services (fisheries, tourism, coastal protection etc.) into the future. The Nature Conservancy and WWF (World Wildlife Fund) Indonesia have been collaborating closely to assist the Park authority to improve its management objectives. TNC and WWF have established close cooperation with the national Directorate General of Forest Protection and Nature Conservation, the Department of Marine Affairs and Fisheries, the Southeast Sulawesi Provincial government, the district government, local communities, NGOs, and the private sector.

Derawan District

Situated in the global epicenter of coral reef diversity, the reefs of the Derawan Islands are extremely diverse and unique because of the influence of the Berau River on the coastal waters. This area features green turtle nesting beaches that are among the most significant in Southeast Asia, unique saltwater lakes with endemic jellyfish species, and aggregation sites of manta rays. However, the marine resources of the Derawan Islands

are presently threatened by unsustainable fishing practices, notably fishing with explosives and poison, over-fishing, and the hunting of turtle eggs and adults. To protect these unique islands, TNC, WWF Indonesia, and Mitra Pesisir (a United States Agency for International Development (USAID) project) are partnering with provincial and district governments, national and local NGOs, Yayasan Kehati (Keanekaragaman Hayati) , Bestari and Kalbu, as well as communities, to establish a co-managed marine protected area (MPA) that includes use zones and no-take zones. This conservation partnership helps to build the capacity of the local government and communities to effectively manage the protected area and the marine resources upon which coastal livelihoods depend.

Raja Ampat District

The Raja Ampat Islands encompass over 4 million hectares of land and sea off the northwestern tip of Papua and form the global epicenter of coral reef diversity. It is estimated that this area harbors over 75 percent of world's known coral species. A total of 488 scleractinian corals were identified during TNC's Rapid Ecological Assessment in 2002, compared to that of 445 species in North Sulawesi, 379 species in Milne Bay and 347 in Kimbe Bay, PNG. These areas also harbor one of the world's richest coral reef fish faunas; the area has at least 1074 species and is only surpassed in its fish diversity by Milne Bay Province, PNG (1109 species) and Maumere Bay, Flores, Indonesia (1111 species). Overall, reefs in Raja Ampat are in very good health. Reefs do not appear to have suffered from the serious detrimental bleaching events that caused extensive mortality to other reefs in the region in 1998. However, blast and poison fishing, as well as the overexploitation of larger carnivores (sharks and groupers), are still common. In addition, the unrestricted access to and unregulated use of resources by immigrants leaves residents feeling powerless and disenfranchised. In turn, they often overexploit the remaining resources. TNC started its field presence in the Raja Ampat Islands in 2003 after the head of Raja Ampat district issued a letter inviting the organization to help manage the district's marine resources.

2. Survey methodology

2.1 Description of protocols and questionnaires used for the survey

A general monitoring protocol was developed for CTC's perception monitoring program (see Appendix 1). The two primary components of this protocol are methodology and questionnaires. Methodology includes selection criteria for target villages, respondents and independent interviewers. There are two types of questionnaires: a questionnaire for the household and a questionnaire for the individual (see Appendix 1). Furthermore, specific site protocols for Komodo National Park, Wakatobi National Park, Derawan and Raja Ampat were developed. These surveys were based on the general monitoring protocol but were adapted to enable site teams to address issues specific to that site.

For the most part, the survey methodology at each conservation site mirrored that laid out in the general protocol. The primary difference between the general protocol and the specific protocols consisted of the number of villages that were targeted for interviews (see Table 1). Accordingly, the number of interviewers, who are independent and are not affiliated with CTC or its partners, was adjusted to correspond with the number of target villages. The site-based household questionnaires remained the same as those in the general protocol and only the individual respondent questionnaires were adjusted for use at specific sites. The site-specific questionnaire was developed to accommodate the different stages of conservation programs at each site. For example, a number of questions asked of individual respondents in Komodo National Park— a site where CTC has had a presence since 1995 - are not applicable for respondents in Raja Ampat - a site in which CTC only established its presence in 2003, and where to date no formal marine protected area has been gazetted.

2.2 Survey sites

Four of CTC's conservation sites were selected as survey sites for the monitoring program. These are: Komodo National Park of East Nusa Tenggara, Wakatobi National Park of Southeast Sulawesi, Berau district of East Kalimantan and Raja Ampat district of West Papua (Figure 1,2,3,4 and 5). These sites exhibit different types of conservation status ranging from no formal management designation yet (Raja Ampat) to a newly

established marine protected area under the local government (Berau), to existing national parks (Komodo and Wakatobi).



Figure 1: Sites of perception monitoring survey in 2005: Komodo National Park, Wakatobi National Park, Derawan district and Raja Ampat district

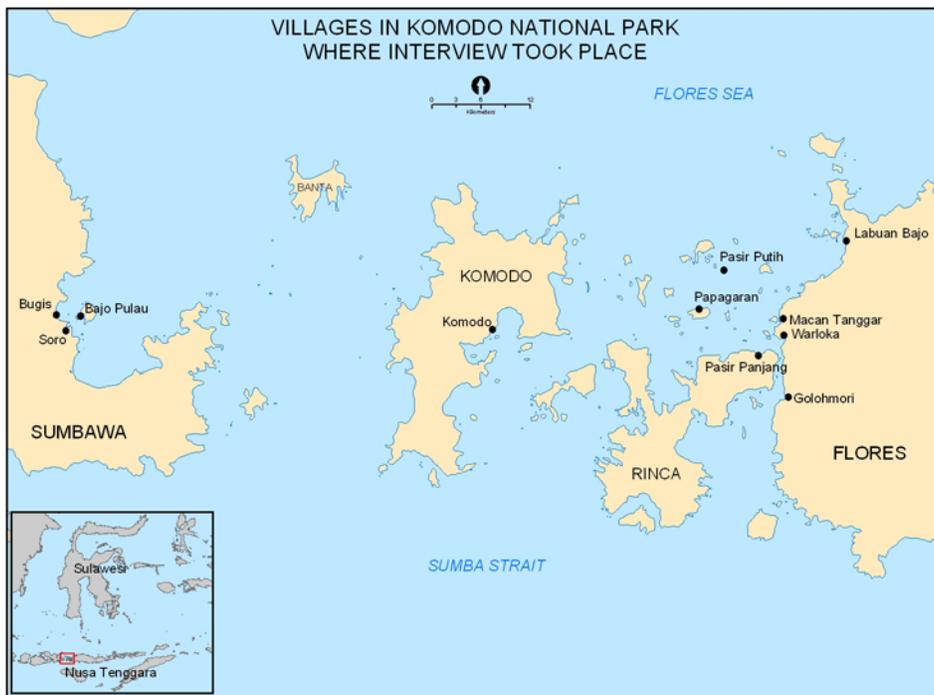


Figure 2: Villages at Komodo National Park where interviews took place in 2005



Figure 3: Villages at Wakatobi National Park where interviews took place in 2005



Figure 4: Villages at Berau district where interviews took place in 2005

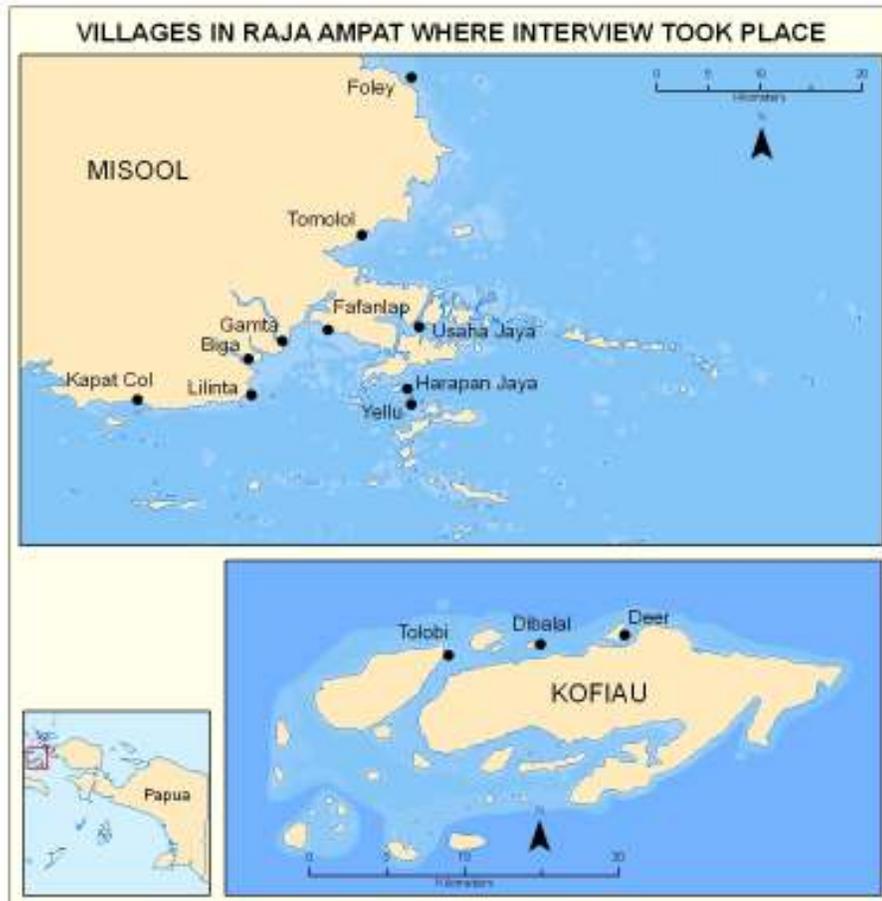


Figure 5: Villages at Raja Ampat district where interviews took place in 2005

2.3 Description of survey results

A total of 46 villages at four CTC conservation sites were selected for interviews (see Table 1). The two main criteria for village selection were that: (a) the majority of the community’s residents resided in coastal areas and exploited marine resources for their daily consumption and/or income generation, and (b) a portion of the community had been subjected to CTC and its partners’ management interventions such as community awareness and development programs.

On average, the response rate for household interviews was relatively high with 100% for Wakatobi and Berau, 99.6% for Raja Ampat and 98.4% for Komodo (Table 1). Of the 1,318 responses collected for household interviews, 93.8% of them were completed and the remaining 6.2% were partially completed. It was also observed that six selected

household respondents rejected the interviews and six households were not available during the time of interview. The majority of households who rejected the interviews were located in Komodo National Park (five households) and the remaining one household was located in Raja Ampat.

Table 1. Response rates for household interviews at all survey sites in Komodo, Wakatobi, Berau and Raja Ampat

| Site/village | Completed | Partially completed | Not available | Rejected | Total village | Total household | Response rate (%) |
|------------------------|-----------|---------------------|---------------|----------|---------------|-----------------|-------------------|
| Komodo national park | 269 | 27 | 6 | 5 | 10 | 296 | 98.4 |
| Wakatobi national park | 296 | 4 | 0 | 0 | 10 | 300 | 100 |
| Berau district | 391 | 0 | 0 | 0 | 13 | 391 | 100 |
| Raja Ampat district | 280 | 51 | 0 | 1 | 13 | 331 | 99.6 |
| Total | 1236 | 82 | 6 | 6 | 46 | 1318 | |

3. Findings

3.1 Characteristic of households

Most houses in the survey sites are permanent, as indicated by their floor and wall materials which are largely composed of wood and brick. However, a small portion of the houses in Komodo, Wakatobi and Raja Ampat have dirt floors. Also, two houses in Raja Ampat have no walls (Table 2).

Table 2. Household characteristics at all survey sites in Komodo, Wakatobi, Berau and Raja Ampat

| Household characteristics | | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|---------------------------|---------|--------|------|----------|------|-------|------|------------|------|
| | | Freq | % | Freq | % | Freq | % | Freq | % |
| Floor | Dirt | 14 | 4.7 | 4 | 1.3 | 0 | 0 | 24 | 7.3 |
| | Bamboo | 32 | 10.8 | 88 | 29.4 | 0 | 0 | 2 | 0.6 |
| | Wood | 209 | 70.6 | 74 | 24.8 | 306 | 78.5 | 188 | 56.8 |
| | Brick | 35 | 11.8 | 86 | 28.8 | 58 | 14.9 | 109 | 32.9 |
| | Ceramic | 6 | 2.0 | 46 | 15.4 | 26 | 6.7 | 8 | 2.4 |

| Household characteristics | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|---------------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Others | 0 | 0 | 1 | 0.3 | 0 | 0 | 0 | 0 |
| No walls | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.6 |
| Bamboo | 83 | 28.0 | 89 | 29.8 | 2 | 0.5 | 4 | 1.2 |
| Palm leaves | 48 | 16.2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wood | 104 | 35.1 | 86 | 28.8 | 344 | 88.2 | 209 | 63.1 |
| Tin | 35 | 11.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Brick | 24 | 8.1 | 121 | 40.5 | 44 | 11.3 | 94 | 28.4 |
| Other | 2 | 0.7 | 3 | 1.0 | 0 | 0 | 1 | 0.3 |

Public facilities such as electricity and running water are not available to all households. On average, 60% of the households have electricity. The highest percentage is found in the Berau district (86.7%), while the lowest is in Raja Ampat (36.6%) (Table 3). On average, only 20.4% of the households at survey sites have running water. The highest percentage is found in Berau (36.4%), while the lowest is in Raja Ampat (2.1%). The average percentage rate of households possessing a TV and a radio is 39.0% and 29.0% at all sites. This indicates that many households prefer to have a TV rather than a radio.

Fishing is the dominant economic activity of households in Komodo (77.8%), Wakatobi (50.3%) and Berau (63.7%), whereas farming is dominant in Raja Ampat (63.1%). However, the number of fisher households in Raja Ampat was still high, at 52.1% (Table 3).

At all sites, households relied mostly on motor boats and paddle-propelled canoes to carry out economic activities. Motor boats are primarily found in Komodo (40.7%) and Berau (51.2%), whereas canoes are dominant in Wakatobi (50.7%) and Raja Ampat (70.7%). Here, a motor boat is defined as a boat with an inboard engine, mostly used for fishing relatively far from the coast. This type of boat can travel for more than one day. A canoe is defined as a paddle-propelled vessel, with or without outriggers. Canoes do not travel for more than one fishing day and they remain close to shore. Fishers with

canoe are subsistence fishers who fish only to meet their daily consumption needs and to sell fish at local markets.

The relative wealth of households in Berau is not only indicated by the high percentage of motor boats (51.2% compared to an average of 19.6% for all other sites), but also by the high percentage of motor bikes (29.8% compared to 7.3% on average for all other sites).

Table 3. Main economic activities of household members and the possession of equipment to support these activities in Komodo, Wakatobi, Berau and Raja Ampat

| Physical indicator and economic activities | | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--|------------------------|--------|-----|----------|------|-------|-----|------------|-----|
| | | % Yes | N | % Yes | N | % Yes | N | % Yes | N |
| In-house facilities | Running water | 20.2 | 297 | 23.0 | 300 | 36.4 | 390 | 2.1 | 330 |
| | Electricity | 57.6 | 297 | 59.0 | 300 | 86.7 | 390 | 36.6 | 331 |
| | Radio | 36.7 | 297 | 19.7 | 300 | 24.6 | 390 | 35.1 | 331 |
| | TV | 37.4 | 297 | 34.3 | 300 | 63.3 | 390 | 20.9 | 331 |
| Economic activities | Fishing | 77.8 | 297 | 50.3 | 300 | 63.7 | 389 | 52.1 | 330 |
| | Tourism | 2.4 | 296 | 0 | 300 | 0.5 | 389 | 0 | 331 |
| | Craft-making | 9.8 | 296 | | | | | | |
| | Seaweed farming | 0 | 296 | 11.0 | 300 | 0.3 | 389 | 0.3 | 331 |
| | Fish culture | 2.7 | 295 | 0.7 | 300 | 0.8 | 389 | 0 | 331 |
| | Pearl farming | 1.7 | 295 | | | | | | |
| | Boatman | 3.4 | 294 | 10.3 | 300 | 1.5 | 389 | 0.3 | 331 |
| | Marine product trader | 4.1 | 294 | 3.3 | 300 | 3.3 | 389 | 0.6 | 331 |
| | Govt. employee | 0.7 | 295 | 3.0 | 300 | 6.7 | 389 | 2.7 | 331 |
| | Firewood collector | 1.0 | 295 | | | | | | |
| | Farmer | * | | | | 8.2 | 389 | 63.1 | 331 |
| | Boat maker | 3.4 | 295 | | | | | | |
| | Labor/Non-govt. worker | | | | | | | 18.7 | 331 |
| Others | 17.5 | 268 | | | 30.8 | 389 | 3.6 | 330 | |
| Equip-ment to | Canoe | 21.6 | 297 | 50.7 | 300 | 50.9 | 389 | 70.7 | 331 |

*Empty cell indicates that the indicators (economic activity and supporting equipment) were not included in the questionnaire of that particular site.

| Physical indicator and economic activities | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--|--------|-----|----------|-----|-------|-----|------------|-----|
| | % Yes | N | % Yes | N | % Yes | N | % Yes | N |
| Bicycle | 7.1 | 297 | 16.0 | 300 | 24.2 | 389 | 2.7 | 331 |
| Sailing boat | 3.4 | 297 | 2.0 | 300 | 3.9 | 389 | 18.4 | 331 |
| Motor boat | 40.7 | 297 | 6.0 | 299 | 51.2 | 389 | 12.1 | 331 |
| Canoe with outrigger | 4.7 | 297 | 18.0 | 300 | 3.1 | 388 | 23.9 | 331 |
| Motor bike | 6.4 | 297 | 15.3 | 300 | 29.8 | 389 | 0.3 | 331 |
| Cart wagon | 1.7 | 297 | | | | | | |
| Pick-up | 0.7 | 297 | 0.3 | 300 | 2.8 | 389 | 0.6 | 331 |

3.2 Socio-demographic characteristics of individual respondents

3.2.1 Gender

Respondents to individual surveys consist of 2,427 individuals approximately equally divided between the sexes (Table 4). Only in Wakatobi were more females than males interviewed. The time at which interviews were conducted in Wakatobi coincided with the time when most of the male fishers were away fishing. These fishers use temporary shelters built above the shallow reefs around the islands and often stay away from the village for a few days at a time (Figure 6). In contrast, female fishers stay at home to take care of their families, hence, they were more readily available to respond to interviews.

Table 4. Female and male respondents at all survey sites in Komodo, Wakatobi, Berau and Raja Ampat

| Respondents | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Female | 268 | 50.2 | 296 | 56.5 | 384 | 49.9 | 300 | 50.1 |
| Male | 266 | 49.8 | 228 | 43.5 | 386 | 50.1 | 299 | 49.9 |
| Total respondent | 534 | 100 | 524 | 100 | 770 | 100 | 599 | 100 |



Figure 6: An aerial picture of Kaledupa reefs of Wakatobi Islands (left). A temporary shelter built in shallow reefs around Kaledupa reef of Wakatobi Islands (right).

3.2.2 Main occupation

The team developed 18 occupational categories that were based on a list of individual economic activities. The team divided fishing activities into two categories: destructive and non-destructive fishing. Destructive fishing includes cyanide fishing, blast fishing, trawl fishing, etc, while non-destructive fishing includes hand-line fishing, gill-net fishing, spear fishing, etc.

The main occupation of respondents in Komodo National Park and in the coastal villages of Berau District is non-destructive fishing with percentages of 37.3 and 30.8. In Wakatobi and Raja Ampat, however, farming is the dominant occupation comprising 28.5% and 52.6% of household occupations respectively (Table 4). Although these communities do fish, they did not regard fishing as their primary occupation. These communities tend to make money from selling their agricultural products, (such as dry coconuts, sago, corns, etc.), whereas fishing was primarily undertaken to meet subsistence needs.

Regarding destructive fishing, it appears that Komodo has the highest percentage of individuals engaging in destructive practices, 12.4% compared with 1.0% for Wakatobi; 0.7% for Berau; and 0% for Raja Ampat. The primary destructive fishing method was reef gleaning. In this activity, fishers walk over dry reefs during low tide in search of abalone and sea cucumbers, using crow bars to dig out valuable species that hide in reef crevices. This practice destroys corals and the other living organisms associated with

them. Some fishers also took part in cyanide fishing, an activity in which cyanide solution is used to facilitate the catch of live fish.

It is also interesting to note that a relatively high percentage of respondents at all sites were not employed. The percentage of non-working respondents was highest in the Berau district at 38.0%. However, most of these respondents were housewives who did not directly generate income for their families and hence regarded themselves as unemployed.

In general, the types of occupations that existed in Raja Ampat were less diverse than those at the other sites. There are only eight types of occupations at this site compared to 14 in Komodo and 16 in Wakatobi and Berau (Table 4).

Table 5. Main occupation of respondents in Komodo, Wakatobi, Berau and Raja Ampat*

| Category of primary occupation | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--------------------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Destructive fishing | 56 | 12.4 | 5 | 1.0 | 5 | 0.7 | 0 | 0 |
| Non-destructive fishing | 168 | 37.3 | 116 | 22.2 | 237 | 30.8 | 45 | 7.5 |
| Marine life farming | 9 | 2.0 | 37 | 7.1 | 5 | 0.7 | 0 | 0 |
| Marine product trading | 12 | 2.7 | 5 | 1.0 | 6 | 0.8 | 0 | 0 |
| Non-marine product trading | 33 | 7.3 | 19 | 3.6 | 54 | 7.0 | 12 | 2.0 |
| Farming | 39 | 8.7 | 149 | 28.5 | 30 | 3.9 | 315 | 52.6 |
| Government employee | 12 | 2.7 | 10 | 1.9 | 34 | 4.4 | 13 | 2.2 |
| Non-government employee | 5 | 1.1 | 18 | 3.4 | 15 | 2.0 | 79 | 13.2 |
| Business people | 11 | 2.4 | 3 | 0.6 | 9 | 1.2 | 3 | 0.5 |
| Home industry | 15 | 3.3 | 11 | 2.1 | 27 | 3.5 | 12 | 2.0 |
| Illegal mining | 0 | 0 | 6 | 1.2 | 1 | 0.1 | 0 | 0 |
| Labor | 6 | 1.3 | 9 | 1.7 | 29 | 3.8 | 3 | 0.5 |
| Livestock farming | 6 | 1.3 | 1 | 0.2 | 1 | 0.1 | 0 | 0 |
| Migrant worker | 0 | 0 | 1 | 0.2 | 0 | 0 | 0 | 0 |
| Service | 2 | 0.4 | 3 | 0.6 | 16 | 2.1 | 0 | 0 |

* Main occupations listed above have already been categorized. For example: activities of fishing, gill-netting, hand lining are all belong to non destructive fishing category.

| Category of primary occupation | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--------------------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Village clerk | 0 | 0 | 0 | 0 | 7 | 1.0 | 0 | 0 |
| Student | 6 | 1.3 | 9 | 1.7 | 1 | 0.1 | 0 | 0 |
| Not working (Unemployed) | 71 | 15.7 | 121 | 23.1 | 292 | 38.0 | 117 | 19.5 |
| Total respondents | 451 | 100 | 523 | 100 | 769 | 100 | 599 | 100 |

3.2.3 Education

The majority of respondents at all sites had some elementary level education but only a very small percentage of respondents had any university training. There were also a number of respondents who had not had any formal schooling at all, namely: 9.6% in Komodo; 10.5% in Wakatobi; 5.7% in Berau; and 2.2% in Raja Ampat (Table 5). This means that outreach and awareness programs must be developed to be accessible to communities in which the majority of residents have no more than an elementary school education.

Table 6. Level of formal education of respondents in Komodo, Wakatobi, Berau and Raja Ampat

| Level of Formal Education | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--------------------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Never enrolled in school | 51 | 9.6 | 55 | 10.5 | 43 | 5.7 | 13 | 2.2 |
| Elementary school | 346 | 64.9 | 273 | 52.3 | 497 | 64.6 | 405 | 67.6 |
| Junior high school | 60 | 11.3 | 144 | 27.6 | 140 | 18.2 | 110 | 18.4 |
| High school | 66 | 12.4 | 38 | 7.3 | 70 | 9.1 | 64 | 10.7 |
| Above high school (University) | 10 | 1.9 | 12 | 2.3 | 19 | 2.5 | 7 | 1.2 |
| Total respondents | 533 | 100 | 522 | 100 | 769 | 100 | 599 | 100 |

3.2.4 Ethnicity and Religion

The majority of respondents (48.3%) residing in and around Komodo National Park came from the ethnic group of Sumbawa/Lombok of West Nusa Tenggara, not from East Nusa Tenggara the region to which Komodo National Park belongs administratively (Table 6).

This composition reflects historical patterns of settlement; when the traditional system (kingdoms) was still in place, Komodo National Park area was part of the Bima Sultanate of Sumbawa Island. It seems that people from Bima who migrated to Komodo now compose the majority of the communities residing in and around Komodo National Park. Furthermore, there is an important distinction between the ethnic group of Sumbawa and that of Flores; in the Sumbawa/Lombok ethnic group, most people are fishers and Moslems, while those of Flores are mostly farmers and Christian.

In addition, there are also other ethnic groups that contribute to the diversity of respondents in Komodo area: Bajau (23.1%), Flores (18.5%), and Sulawesi (9.3%). The Bajau and the Sulawesi (especially from sub ethnic Bugisnes) are nomadic and frequently travel along the coastal areas of Indonesia in search of a better life.

In Wakatobi, the majority of respondents (82.1%) belong to the Sulawesi ethnic group who are mostly from Wakatobi and Buton. In addition, the following groups were found: Bajau (17.6%), Maluku Islands (0.2%) and Jawa (0.2%) (Table 6). It seems that local ethnicities still comprise the majority of the communities residing in Wakatobi National Park and its surrounding areas. Compared to other sites, the ethnic and religious diversity of communities in Wakatobi is low. Both, Wakatobian and Butonesse ethnic groups are mostly Moslem.

The majority of respondents residing in coastal villages of Berau District of East Kalimantan are from the ethnic groups of Bajau (45%) and Sulawesi (40.5%). Interestingly, only 9.5% of respondents were natives of Kalimantan. As previously mentioned, the Bajau and the Sulawesians are ordinarily fishers and nomadic, whereas the Kalimantan are typically farmers who prefer to live on the mainland.

The majority of respondents in Raja Ampat are of Papuan ethnicity and they belong to the following groups: Raja Ampat (50.4%); Beser (20.9%); and Papua (0.9%). Also 19.7% of respondents are from Maluku Islands; 6.9% from Sulawesi; 0.8% from Jawa; and 0.5% from Flores (Table 6). It is not surprising to find a relatively high percentage from the Maluku Islands because the Raja Ampat Islands are bordered by the Maluku Islands. The majority of the Sulawesi peoples in Raja Ampat belong to the group of Buton.

Table 7. Major ethnic groups residing in Komodo, Wakatobi, Berau and Raja Ampat

| Major ethnic group | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|------------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Sulawesi | 49 | 9.3 | 430 | 82.1 | 312 | 40.5 | 41 | 6.9 |
| Bajau | 122 | 23.1 | 92 | 17.6 | 346 | 45 | 0 | 0 |
| Maluku Islands | 0 | 0 | 1 | 0.2 | 0 | 0 | 117 | 19.7 |
| Jawa | 4 | 0.8 | 1 | 0.2 | 24 | 3.1 | 5 | 0.8 |
| Flores | 97 | 18.5 | 0 | 0 | 1 | 0.1 | 3 | 0.5 |
| Bali | 2 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sumbawa / Lombok | 255 | 48.3 | 0 | 0 | 11 | 1.4 | 0 | 0 |
| Kalimantan | 0 | 0 | 0 | 0 | 72 | 9.5 | 0 | 0 |
| Saudi Arabia and China | 0 | 0 | 0 | 0 | 3 | 0.4 | 0 | 0 |
| Papua | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.9 |
| Papua, sub Beser | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 20.9 |
| Papua, sub Raja Ampat | 0 | 0 | 0 | 0 | 0 | 0 | 302 | 50.4 |
| Total respondents | 529 | 100 | 524 | 100 | 769 | 100 | 598 | 100 |

3.2.5 Support for Marine Protected Areas development

Respondents were also asked their opinion regarding the development of Marine Protected Areas (MPAs). The question was phrased in such a way to make it easily understood by respondents: ‘Do you believe it is a good idea to demarcate some coastal areas to be zones where the natural environment and the marine life can be protected and preserved?’

It is encouraging to know that overall the majority of respondents were very supportive of MPAs. As shown in Table 7, most respondents (88,3% in Komodo, 53.2% in Wakatobi, 45.6% in Berau and 22.5% in Raja Ampat) are in agreement with the idea to develop MPAs to protect and preserve marine life. It appears that Komodo, the conservation site where TNC has worked longest, has the highest percentage of respondents who support the MPA concept. Also, as the site that has had the longest exposure to awareness programs, Komodo has fewer people who were uncertain of their opinion regarding the

creating of MPAs. In contrast, the sites that have had shorter exposure to awareness programs (Wakatobi, Berau and Raja Ampat) have many people who were unsure of how they felt about the MPA concept (reflected by their choice of “don’t know/not sure” as their response to this question). Hence, there is an opportunity to intensify awareness programs at the latter sites in order to turn those who are uncertain of their opinion regarding marine conservation into MPA supporters.

Table 8: Perception of respondents on the idea to demarcate coastal areas to protect and preserve marine life

| Demarcate coastal areas | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|-------------------------|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Agree | 467 | 88.3 | 277 | 53.2 | 351 | 45.6 | 132 | 22.5 |
| Not agree | 10 | 1.9 | 51 | 9.8 | 25 | 3.3 | 34 | 5.8 |
| Don’t know / Not sure | 52 | 9.8 | 193 | 37 | 393 | 51.1 | 421 | 71.7 |
| Total respondent | 529 | 100 | 521 | 100 | 769 | 100 | 587 | 100 |

3.2.6 Source of Information

It appears that television is preferred over radio as a source of information. When respondents were asked about the frequency with which they watched television and listened to radio, the majority of respondents (54.3% in Komodo, 43.2% in Wakatobi, and 64.1% in Berau) said they watched television every day (Table 8). However, in Raja Ampat, the percentage of respondents who listened to the radio every day is higher than those who watched television. These figures may reflect the fact that more households in Raja Ampat own a radio than a television (see Table 3).

The percentage of respondents who never watch television is 2.8 for Komodo; 4.6 for Wakatobi; 0.8 for Berau; and 29.8 for Raja Ampat; whereas the percentage of those who never listen to radio is 19.2 for Komodo; 32.3 for Wakatobi; 33.4 for Berau; and 25.5 for Raja Ampat. These high percentages for those who never listen to the radio are surprising given that radio broadcasting is more accessible than television in the study sites.

3.2.7 Attitudes toward coastal and marine environments

Overall, the percentage of respondents at all sites who perceived the condition of coral reef and mangrove ecosystems around their villages as good are relatively high except in Wakatobi (Table 9). In Komodo, 46.6% and 49.0% of respondents said that coral reefs and mangroves are in good condition. Similarly, 45.3% and 53.8% of respondents in Berau and 54.8% and 61.6% of respondents in Raja Ampat said that coral reef and mangrove ecosystems were in good condition. However, in Wakatobi only 35.9% and 19.9% of respondents said that coral reef and mangrove ecosystems were in good condition (Table 9).

A relatively large percentage of respondents at all sites did not know or were not sure about the condition of the coral reefs and mangroves near their villages: 26.2% and 22.9% in Komodo, 26.8% and 60.8% in Wakatobi, 33.8% and 29.6% in Berau, and 22.2% and 18.4% in Raja Ampat (Table 9). Most of these respondents were probably farmers, housewives, non-marine product traders, or livestock farmers who would presumably be less knowledgeable about the condition of marine resources.

In Wakatobi the majority of respondents (60.8%) were uncertain about the condition of mangroves near their villages. This was a surprising finding because mangroves are found in many parts of the coastline and have been used for fire wood for a long time. It might be that most of respondents do not know or are not interested in knowing about mangroves. Hence, it is important to provide knowledge and information to those villagers who do not know that mangroves contribute to coastal protection and to the sustainability of coastal fisheries.

Table 9. Frequency of respondents in Komodo, Wakatobi, Berau and Raja Ampat to watch television and listen to radio

| Frequency of listening to radio and watching TV | Komodo | | | | Wakatobi | | | | Berau | | | | Raja Ampat | | | |
|---|--------|------|-------|------|----------|------|-------|------|-------|------|-------|------|------------|------|-------|------|
| | TV | | Radio | | TV | | Radio | | TV | | Radio | | TV | | Radio | |
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Every day | 288 | 54.3 | 150 | 28.3 | 226 | 43.2 | 29 | 5.5 | 491 | 64.1 | 72 | 9.4 | 90 | 15.1 | 131 | 21.9 |
| 2-6 days per week | 91 | 17.2 | 51 | 9.6 | 71 | 13.6 | 21 | 4.0 | 132 | 17.2 | 51 | 6.6 | 6 | 1.0 | 9 | 1.5 |
| Between once a week and once a month | 71 | 13.4 | 35 | 6.6 | 68 | 13.0 | 34 | 6.5 | 25 | 3.3 | 25 | 3.6 | 3 | 0.5 | 9 | 1.5 |
| Very seldom | 65 | 12.3 | 193 | 36.4 | 134 | 25.6 | 270 | 51.6 | 112 | 14.6 | 365 | 47.4 | 320 | 53.6 | 297 | 49.6 |
| Never | 15 | 2.8 | 102 | 19.2 | 24 | 4.6 | 169 | 32.3 | 6 | 0.8 | 257 | 33.4 | 178 | 29.8 | 153 | 25.5 |
| Total respondents | 530 | 100 | 531 | 100 | 523 | 100 | 523 | 100 | 766 | 100 | 770 | 100 | 597 | 100 | 599 | 100 |

Table 10. Perceptions regarding coral reef and mangrove conditions at target villages in Komodo, Wakatobi, Berau and Raja Ampat

| Condition | Komodo | | | | Wakatobi | | | | Berau | | | | Raja Ampat | | | |
|---------------------|------------|------|----------|------|------------|------|----------|------|------------|------|----------|------|------------|------|----------|------|
| | Coral reef | | Mangrove | | Coral reef | | Mangrove | | Coral reef | | Mangrove | | Coral reef | | Mangrove | |
| | Freq | % | Freq | % |
| Very good | 11 | 2.1 | 50 | 9.4 | 19 | 3.6 | 7 | 1.3 | 10 | 1.3 | 39 | 5.1 | 21 | 3.5 | 47 | 7.9 |
| Good | 249 | 46.6 | 261 | 49.0 | 188 | 35.9 | 104 | 19.9 | 348 | 45.3 | 414 | 53.8 | 328 | 54.8 | 369 | 61.6 |
| Bad | 79 | 14.8 | 53 | 9.9 | 126 | 24.1 | 91 | 17.4 | 127 | 16.5 | 72 | 9.4 | 92 | 15.4 | 59 | 9.9 |
| Very bad | 55 | 10.3 | 47 | 8.8 | 50 | 9.6 | 3 | 0.6 | 24 | 3.1 | 17 | 2.2 | 25 | 4.2 | 14 | 2.3 |
| Don't know/not sure | 140 | 26.2 | 122 | 22.9 | 140 | 26.8 | 318 | 60.8 | 260 | 33.8 | 228 | 29.6 | 133 | 22.2 | 110 | 18.4 |
| Total respondents | 534 | 100 | 533 | 100 | 523 | 100 | 523 | 100 | 769 | 100 | 770 | 100 | 599 | 100 | 599 | 100 |

Respondents were also asked about their perceptions regarding the present and future conditions of coastal and marine environments within and near their villages. Respondents could choose between the following four answers: (a) better, (b) remain the same, (c) worse, and (d) don't know/not sure.

Overall, there is no large contrast between sites in regards to the perceptions of respondents on the future conditions of coastal and marine environment. The predominant perception of respondents was that they were unsure of what the future conditions would be followed by the perception that conditions would deteriorate further in the future (Table 10). It appears that communities are worried that existing environmental threats will continue if they are not properly addressed. Although there have been efforts to create better environmental protection and management authority at all sites, for instance through the establishment of National Parks and Marine Protected Areas, respondents did not perceive that these effort were sufficient to address environmental threats.

Further, there is a large contrast between sites regarding the perceptions of respondents on the current conditions of coastal and marine environment. Respondents in Komodo and Raja Ampat perceived that the conditions have improved, whereas those in Wakatobi and Berau perceived that the conditions have deteriorated. In Komodo, the percentage of respondents who said that the present condition is better when compared to conditions from ten years ago is 37.3%, and the percentage of respondents who said so in Raja Ampat is 40.7% (Table 10). In contrast, the percentage of respondents who said that the present condition is worse in Wakatobi is 32.5%, and the percentage of respondents who said so in Berau is 28.2% (Table 10).

Table 11. Perceptions on the present and future coastal and marine environment conditions at targets villages in Komodo, Wakatobi, Berau and Raja Ampat

| Coastal and marine environment condition | Komodo | | | | Wakatobi | | | | Berau | | | | Raja Ampat | | | |
|--|---------|------|--------|------|----------|------|--------|------|---------|------|--------|------|------------|------|--------|------|
| | Present | | Future | | Present | | Future | | Present | | Future | | Present | | Future | |
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Better | 198 | 37.3 | 97 | 18.2 | 81 | 15.5 | 87 | 16.6 | 178 | 23.1 | 94 | 12.2 | 244 | 40.7 | 96 | 16.0 |
| Remains the same | 168 | 31.6 | 95 | 17.9 | 150 | 28.7 | 86 | 16.4 | 241 | 31.3 | 199 | 25.8 | 120 | 20.0 | 99 | 16.5 |
| Worse | 71 | 13.4 | 117 | 22.0 | 170 | 32.5 | 141 | 27.0 | 217 | 28.2 | 213 | 27.7 | 92 | 15.4 | 138 | 23.0 |
| Don't know/ not sure | 94 | 17.7 | 223 | 41.9 | 122 | 23.3 | 209 | 40.0 | 134 | 17.4 | 264 | 34.3 | 143 | 23.9 | 266 | 44.4 |
| Total respondents | 531 | 100 | 532 | 100 | 523 | 100 | 523 | 100 | 770 | 100 | 770 | 100 | 599 | 100 | 599 | 100 |

Respondents were also asked to describe the major coastal and marine environmental threats found within or near their villages. Based on their answers, the interviewer then listed them as shown below in Table 11. Overall, blast fishing is perceived as the number one cause for coastal and marine environmental problems followed by cyanide fishing. In Berau, a relatively large number of respondents also mentioned trawl fishing and outside fishers -- fishers who were not residing within the Berau District. In addition, there was also a relatively large number of respondents who said that there were no environmental problems in their villages.

It appears that respondents had not yet perceived, or probably had ignored, over-fishing as a major threat to fisheries. Although they acknowledged that fishers currently have to travel farther from the coast in order to catch fish, most respondents indicated that they believe that fisheries will continue to be an abundant resource. Research, however, has indicated that almost all fishing grounds in Indonesia have already been over-exploited.

Table 12. Perceived major problems in coastal and marine environment at target villages in Komodo, Wakatobi, Berau and Raja Ampat

| Perceived major environmental problems | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--|--------|------|----------|------|-------|------|------------|------|
| | Yes | | Yes | | Yes | | Yes | |
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Over fishing | 30 | 5.6 | 75 | 14.4 | 35 | 4.6 | 70 | 11.7 |
| Blast fishing | 161 | 30.2 | 266 | 51.2 | 205 | 26.6 | 242 | 40.7 |
| Cyanide fishing | 70 | 13.1 | 186 | 35.7 | | | 149 | 24.9 |
| Poison (<i>tuba</i>) fishing | 12 | 2.3 | 81 | 15.5 | 156 | 20.3 | 44 | 7.3 |
| Trawl fishing | | | | | 164 | 21.4 | | |
| Mini trawl fishing | | | | | 83 | 10.8 | | |
| Lift net fishing | | | | | 7 | 0.9 | | |
| Trap (<i>bubu</i>) fishing | 6 | 1.1 | 10 | 1.9 | 11 | 1.4 | 28 | 4.7 |
| Mangrove cutting | 4 | 0.8 | 49 | 9.4 | 38 | 4.9 | 18 | 3.0 |
| Coral mining | 24 | 4.5 | 39 | 7.5 | 37 | 4.8 | 21 | 3.5 |
| Sea water contamination | 5 | 0.9 | 1 | 0.2 | 19 | 2.5 | 20 | 3.3 |
| Animal poaching | 10 | 1.9 | | | | | | |
| Beach abrasion | 4 | 0.8 | | | | | | |

| Perceived major environmental problems | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--|--------|------|----------|------|-------|------|------------|------|
| | Yes | | Yes | | Yes | | Yes | |
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Land erosion | | | 7 | 1.3 | 13 | 1.7 | 16 | 2.7 |
| Land clearing | | | 5 | 1.0 | 23 | 3.0 | 43 | 7.2 |
| Invasive species | | | 2 | 0.4 | | | 1 | 0.2 |
| Inadequate fresh water | 2 | 0.4 | | | 25 | 3.2 | | |
| Sea water intrusion | | | 4 | 0.8 | 13 | 1.7 | 8 | 1.3 |
| Weak law enforcement | | | | | 70 | 9.1 | | |
| Forest burning | 5 | 0.9 | | | | | | |
| Immigration | | | | | 15 | 1.9 | | |
| High population | 0 | 0 | 14 | 2.7 | 1 | 0.1 | 16 | 2.7 |
| Outside fishers | 17 | 3.2 | | | 139 | 18.1 | | |
| Reef gleaning | 7 | 1.3 | | | | | | |
| Others | 44 | 8.3 | | | 26 | 3.4 | 8 | 1.3 |
| Don't know/not sure | 203 | 71.7 | 97 | 18.6 | 265 | 34.4 | 183 | 30.6 |
| No major environmental problems | 88 | 44.7 | 57 | 10.9 | 146 | 19.0 | 125 | 20.9 |

Most respondents at all sites believe that coastal and marine environmental problems are caused by the villagers themselves and both outside and local fishers (Table 12). In Komodo, 27.9% and 25.4% respondents said that coastal and marine environmental problems are caused by villagers and outside fishers. In Wakatobi, 39.7% and 36.5% respondents said that coastal and marine environmental problems are created by local fishers and villagers. In addition, outside fishers (64.7%) and villagers (20.3%) were the two major groups creating coastal and marine environmental problems in the Berau district. In Raja Ampat, major coastal and marine environmental problems were also perceived to have been created by the villagers themselves (36.3%), followed by the private sector (16.2%), local fishers (15.5%) and the head of village (12.0%) (Table 12).

Most respondents believe that either the village head or an enforcement agency should solve environmental problems and very few believe that they should solve the problem

themselves. A notable exception is found in Berau where large percentage of respondents said that the fisheries service should solve environmental problems. As mentioned above, the major marine environmental problem in Berau is caused by outside fishers. These outside fishers are not only those from other areas of Indonesia but also those from outside Indonesia. Some of these fishers have permits from the fisheries institution. Therefore, respondents believe that the fisheries service is the most appropriate institution to solve the problem. In Wakatobi, a relatively large number of respondents (22.7%) also mentioned that Park rangers should solve marine problems (Table 12).

Table 13. Perceived major “creators and solvers” for coastal and marine environment problems at villages in Komodo, Wakatobi, Berau and Raja Ampat

| Major creator and solver for environmental problems | Komodo | | | | Wakatobi | | | | Berau | | | | Raja Ampat | | | |
|---|---------|------|--------|------|----------|------|--------|------|---------|------|--------|------|------------|------|--------|------|
| | Creator | | Solver | | Creator | | Solver | | Creator | | Solver | | Creator | | Solver | |
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Villager | 67 | 27.9 | 7 | 2.9 | 137 | 36.5 | 42 | 11.2 | 73 | 20.3 | 13 | 3.6 | 103 | 36.3 | 6 | 2.1 |
| Community leader | 2 | 0.8 | 11 | 4.6 | | | | | | | | | | | | |
| Tourist/visitor | 4 | 1.7 | 0 | 0 | 8 | 2.1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1.4 | 0 | 0 |
| Head of district | 3 | 1.3 | 27 | 11.3 | 1 | 0.3 | 3 | 0.8 | 1 | 0.3 | 28 | 7.8 | 1 | 0.4 | 7 | 2.5 |
| Head of village | 2 | 0.8 | 59 | 24.8 | 5 | 1.3 | 85 | 22.7 | 4 | 1.1 | 28 | 7.8 | 34 | 12.0 | 154 | 54.2 |
| Head of sub-village | 2 | 0.8 | 27 | 11.3 | | | | | | | | | | | | |
| Head of sub-district | 0 | 0 | 3 | 1.3 | 0 | 0 | 10 | 2.7 | 0 | 0 | 8 | 2.2 | 2 | 0.7 | 11 | 3.9 |
| National government | 4 | 1.7 | 16 | 6.7 | 9 | 2.4 | 34 | 9.1 | 0 | 0 | 2 | 0.6 | 0 | 0 | 3 | 1.1 |
| Private sector | 1 | 0.4 | 0 | 0 | 11 | 2.9 | 0 | 0 | 5 | 1.4 | 2 | 0.6 | 46 | 16.2 | 0 | 0 |
| Outside (village) fisher | 61 | 25.4 | 0 | 0 | | | | | 233 | 64.7 | 1 | 0.3 | | | | |
| Local fisher | 19 | 7.9 | 0 | 0 | 149 | 39.7 | 2 | 0.5 | | | | | 44 | 15.5 | 2 | 0.7 |
| Fisheries service | * | | | | | | | | 7 | 1.9 | 163 | 45.3 | | | | |
| Park ranger | 13 | 5.4 | 23 | 9.7 | 5 | 1.3 | 79 | 21.1 | | | | | 0 | 0 | 0 | 0 |
| NGO | 5 | 2.1 | 4 | 1.7 | 0 | 0 | 1 | 0.3 | 1 | 0.3 | 5 | 1.4 | 0 | 0 | 4 | 1.4 |

* Empty cells mean that the indicator (creator and solver for environmental problems) was not mentioned by respondents at that particular site.

| Major creator and solver for environmental problems | Komodo | | | | Wakatobi | | | | Berau | | | | Raja Ampat | | | |
|---|---------|------|--------|------|----------|-----|--------|------|---------|-----|--------|------|------------|------|--------|------|
| | Creator | | Solver | | Creator | | Solver | | Creator | | Solver | | Creator | | Solver | |
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Enforcement agency | 1 | 0.4 | 49 | 20.6 | 10 | 2.7 | 59 | 15.7 | 0 | 0 | 80 | 22.2 | 0 | 0 | 76 | 26.8 |
| Others | 5 | 2.1 | 5 | 2.1 | 10 | 2.7 | 36 | 9.6 | 6 | 1.7 | 3 | 0.8 | 48 | 16.9 | 11 | 3.9 |
| Don't know/ not sure | 51 | 21.3 | 7 | 2.9 | 30 | 7.8 | 24 | 6.4 | 30 | 8.3 | 27 | 7.5 | 2 | 0.7 | 10 | 3.5 |
| Total respondent | 240 | 100 | 238 | 100 | 375 | 100 | 375 | 100 | 360 | 100 | 360 | 100 | 284 | 100 | 284 | 100 |

3.2.8 Awareness of environmental and/or national park and/or traditional regulations

Respondents were also asked about their awareness of and obedience to marine environmental regulations. Questions designed for Wakatobi and Komodo, which are both national parks, were intended to determine whether respondents were aware of and obey park regulations. In Berau, the questions were intended to determine respondents' awareness of and obedience to national regulations, whereas in Raja Ampat they are intended to determine the awareness of and obedience to traditional regulations.

As seen in Table 13 below, in Komodo, a majority (33.3%) of respondents said that large portions of communities in the villages were aware of park regulations. Nevertheless, a large percentage of respondents (31.4%) still said that they were uncertain about what percentage of the community was aware of park regulations. When they were asked about their adherence to the regulations, the answers were relatively evenly distributed among those who said a large portion, those who said a portion and those who said a small portion of communities obey the regulations.

In Wakatobi, the majority of respondents (50.4%) said that only a small portion of communities know the park regulations. Also, regarding park regulations adherence, 40.6% of respondents said that only a small portion of communities obey park regulations. It is also interesting that 29.7% of respondents were unsure of about the existence of park regulations (Table 13). In Berau, the percentage of those who said that a portion and those who said a small portion of communities know the national regulations was relatively equal: 29.7% and 30.3% (Table 13). On national regulations adherence, a large segment of respondents (40.9%) said that only a small fraction of communities obeyed national regulations.

In Raja Ampat, a majority of respondents (50.3%) said that a large portion of communities knew the marine environmental traditional regulations. Also, a majority of respondents (43.6%) said that a large portion of communities obey traditional regulations.

Table 14. Perceptions on awareness of environmental regulations (national and traditional regulations) and obedience towards these regulations

| Proportion of communities who know and obey the regulations | Komodo | | | | Wakatobi | | | | Berau | | | | Raja Ampat | | | |
|---|----------------------|------|----------------------|------|----------------------|------|----------------------|------|--------------------------|------|--------------------------|------|-----------------------------|------|-----------------------------|------|
| | Know park regulation | | Obey park regulation | | Know park regulation | | Obey park regulation | | Know national regulation | | Obey national regulation | | Know traditional regulation | | Obey traditional regulation | |
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % | Freq | % |
| Large portion | 177 | 33.3 | 145 | 27.5 | 41 | 7.9 | 71 | 13.6 | 151 | 19.6 | 104 | 13.5 | 301 | 50.3 | 261 | 43.6 |
| A portion | 79 | 14.9 | 75 | 14.2 | 63 | 12.1 | 63 | 12.1 | 228 | 29.7 | 149 | 19.4 | 45 | 7.5 | 42 | 7.0 |
| Small portion | 109 | 20.5 | 117 | 22.2 | 263 | 50.4 | 212 | 40.6 | 233 | 30.3 | 315 | 40.9 | 121 | 20.2 | 126 | 21.0 |
| Don't know/not sure | 167 | 31.4 | 191 | 36.2 | 155 | 29.7 | 176 | 33.7 | 157 | 20.4 | 202 | 26.2 | 132 | 22.0 | 170 | 28.4 |
| Total respondents | 532 | 100 | 528 | 100 | 522 | 100 | 522 | 100 | 769 | 100 | 770 | 100 | 599 | 100 | 599 | 100 |

3.2.9 Participation in stakeholder organizations

The Nature Conservancy, together with its partners, has supported the establishment of stakeholder organizations at each field site. In Komodo, an initiative called the Komodo Collaborative Management Initiative (KCMI) was established in 2003. KCMI is intended to ensure the long-term effective management of Komodo National Park through collaborative management. The members of KCMI consist of representatives from the national park, the district government, NGOs, and the local community. In Wakatobi, a stakeholder forum called the Wakatobi Stakeholder Consultative Forum was established in 2004. This forum is intended to channel input from local stakeholders to the park manager on management issues in Wakatobi National Park.

In Berau, a Steering Team, consisting of representatives from government institutions and local NGOs, was established in 2004. This team primarily functions to facilitate the establishment and management of the Berau Marine Protected Area that was just recently declared in 2005. In Raja Ampat, a stakeholder organization called Raja Ampat Development Forum was established in 2004. Similar to the stakeholder group in Wakatobi, this forum is intended to channel input from stakeholders to the local government on the development plans for MPAs in the Raja Ampat district.

From Table 14, it appears that, in general, respondents at the various sites were not aware of that these stakeholder organizations existed. Even in Komodo, where the KCMI has been established for 3 years, only 12.1% respondents had ever heard of the initiative.

Table 15. Awareness on existing stakeholder organizations in Komodo, Wakatobi, Berau and Raja Ampat

| Awareness on existing stakeholder organization | Komodo | | Wakatobi | | Berau | | Raja Ampat | |
|--|--------|------|----------|------|-------|------|------------|------|
| | Freq | % | Freq | % | Freq | % | Freq | % |
| Ever heard | 62 | 12.1 | 68 | 13.0 | 88 | 11.4 | 47 | 7.9 |
| Never heard | 345 | 67.3 | 409 | 78.4 | 531 | 69.0 | 375 | 62.6 |
| Don't know/not sure | 106 | 20.7 | 45 | 8.6 | 151 | 19.6 | 177 | 29.6 |
| Total respondents | 513 | 100 | 522 | 100 | 770 | 100 | 599 | 100 |

4. Discussion

The majority of respondents support the development of Marine Protected Areas (MPAs). This support is highest at sites such as Komodo, where TNC has worked for longest time and has the longest history of running awareness programs. It appears that at sites where TNC's presence is relatively short (Berau and Raja Ampat), the majority of respondents were uncertain regarding the development of MPAs. It is imperative that TNC's awareness teams intensify their programs to turn this large group of individuals who are uncertain into supporters of MPA development projects.

Overall, respondents show a positive correlation between awareness of, and compliance with regulations. Furthermore, the distance of management authorities (national - park - local/traditional) from the users themselves seems to be negatively correlated with their awareness of these regulations. Hence, especially national management authorities must put more effort towards awareness programs in order to bring the management regime closer to the people.

Most respondents perceived villagers and fishers themselves as responsible for creating major coastal and marine environmental problems. These environmental problems are predominantly the result of destructive fishing practices: blast fishing, cyanide fishing, reef gleaning, trawl fishing, etc. Komodo has the highest percentage of those fishers engaging in reef gleaning, whereas Berau has the highest percentage of fishers who fish with trawls.

Most respondents believe that the village head or an enforcement agency should solve environmental problems and only a few believe they should solve the problem themselves. An exception is found in Berau, where a large percentage of respondents believe that the fisheries service should solve the problem.

Whereas scientific research has indicated that overfishing is rampant in Indonesia, only a small percentage of respondents mentioned overfishing as a major environmental problem. Hence, the challenge for TNC and its partners is to develop awareness programs that will effectively communicate the threat of overfishing.

In Komodo, Berau and Raja Ampat, a relatively high percentage of respondents perceived the condition of coral reefs and mangroves around their villages as good. In Wakatobi, however, 24 % of respondents thought coral reefs were in bad condition, and 61% were unsure of the condition of mangroves near their villages. Since mangroves play an important role in sustaining coastal fisheries and protecting coastal villages from storms, TNC and its partners in Wakatobi should provide information to local communities about the essential functions this ecosystem provides.

Regarding individual and household occupations, the majority of respondents in Komodo and Berau are primarily fishers, whereas those in Wakatobi and Raja Ampat are farmers. These farmers also fished, but they did not regard this as their principal occupation. They predominantly fished to fulfill their daily consumption needs or to sell at a local market.

The majority of communities living in Komodo, Wakatobi, and Berau, preferred television to radio as their source of information and entertainment. Therefore, if TNC and its partners want to use media to communicate conservation messages, then the use of television should be prioritized. In Raja Ampat, however, radio is preferred to television. Hence, for Raja Ampat the use of radio should be prioritized.

The majority of respondents at all sites had no more than an elementary school level of education. This means that the content and language of messages used in the outreach materials such as posters, informational sheets, etc. must be simple and easy to understand for people who possess only a basic education.

Most of the houses at survey sites in Komodo, Wakatobi, Berau and Raja Ampat were permanent. The walls and floors were mainly made of bricks and wood. The primary economic activity of households in Komodo, Wakatobi and Berau was fishing, whereas in Raja Ampat it was farming. The majority of households had a motor boat or a canoe to support their economic activities. Motor boats are largely found in Komodo and Berau, whereas canoes are found mostly in Wakatobi and Raja Ampat. By looking at the above equipment, we can conclude that fishers in Wakatobi and Raja Ampat are primarily small-scale fishers.

5. Conclusions

- The communities at all survey sites are very supportive of the idea of developing MPAs. The level of support is positively correlated with the amount of time that an awareness program has been in place.
- Respondents' compliance with resource use regulations is positively correlated with their awareness regarding those regulations. Furthermore, there is a positive correlation between the proximity of management authorities and respondents' compliance. Compliance with traditional, local regulations tends to be higher than compliance with national regulations. Thus, local presence of a management authority (national, local, or traditional) is crucial to the success of any regulatory scheme.
- The level of awareness about stakeholder organizations is low at all sites. Awareness teams should broaden the base for stakeholder involvement.
- The major actors responsible for creating coastal and marine environmental problems are villagers and fishers themselves at all sites. Most respondents in Komodo, Wakatobi, and Raja Ampat believe that the head of village or an enforcement agency should solve these environmental problems. In Berau, most respondents suggested that the fisheries service should solve the problem.
- Blast fishing and cyanide fishing are the major coastal and marine environmental threats in Raja Ampat and Wakatobi, while reef gleaning is the main threat in Komodo. In Berau, trawl fishing is identified as the most serious threat.

- Television is preferred as the predominant source of information for communities residing in Komodo, Wakatobi and Berau. However, in Raja Ampat, communities prefer to use radio as their main source of information.
- Most of the houses at survey sites are permanent. Public facilities such as electricity and clean water are not evenly distributed across all sites. Compared with other sites, these facilities are most available in Berau.

6. Recommendations

6.1 Recommendation for management

- The percentage of respondents in Wakatobi, Raja Ampat and Derawan who are uncertain about the idea of MPA development is high (53%). Therefore, the awareness teams should work to turn these people into supporters. This can be done by explaining how the MPA functions to secure sustainable fisheries and protect biodiversity.
- Across all sites, on average, only 11% of respondents are aware of stakeholder organizations. Therefore, the awareness teams must broaden the base of these organizations. This can be done by explaining the roles these organizations play and by reaching out to more people.
- Averaging across sites, 62% of respondents have only elementary school education. Consequently, teams should develop simple and accessible outreach materials. This can be done by developing materials that are rooted in the local context and are presented in the local language.
- In Wakatobi, 61% of respondents were uncertain about the condition of mangroves in their villages and surrounding areas. Thus, awareness teams should develop materials that explain the important functions that mangroves provide for fisheries and the protection of coastal areas.
- Overall, only 9% of respondents perceived overfishing as the main problem in the coastal and marine environment. Therefore, awareness teams should develop materials on the perils of overfishing. Among other techniques, this objective can be achieved by disseminating results of monitoring programs on fish spawning aggregation sites that are currently conducted in each area.

- Many respondents in Komodo, Wakatobi and Raja Ampat perceived that the head of villages or an enforcement agency should solve environmental problems (34% and 21%). Therefore, awareness teams should continue to provide up-to-date information on conservation matters to these persons or institutions and should encourage their active participation in awareness programs.
- In Berau, most respondents perceived that the fisheries service (45%) or an enforcement agency (22%) should solve environmental problems. Therefore, awareness team in Berau should continue to provide up-to-date information on conservation matters to these institutions and encourage their active participation in awareness programs.
- Averaging across sites, respondents perceived fishers (local and outside) (38%) and villagers themselves (30%) as the major source of coastal and marine environmental problems. Therefore, awareness teams should specifically target these groups to improve awareness of these people on their ability to and role in carrying out environmental conservation and management.

6.2 Recommendation for perception monitoring

- Implement a follow-up survey in the coming year.
- Conduct a field workshop at each site prior to survey implementation.
- Make the questionnaires shorter (interviewers mentioned that it took too long to complete the interviews, which sometimes annoyed the respondents).
- Enter survey data following the guidelines. Pay specific attention to differentiate between a zero and a missing value.
- Hire independent interviewers of both genders to conduct the survey.

Acknowledgement

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List of Appendices:

1. General perception monitoring protocol of The Nature Conservancy-Coral Triangle Center in 2005.

**General protocol for the
implementation of perception monitoring program
at SEACMPA's marine conservation sites in Indonesia**

Draft, for distribution

Version 3: April 14, 2005

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Introduction

As an integral part of its comprehensive monitoring program, The Nature Conservancy Southeast Asia Center for Marine Protected Areas (TNC SEACMPA) will develop and implement a system to monitor the perception of stakeholders on resource status, resource use, and resource management at its four marine conservation sites in Indonesia, i.e.: Komodo, Wakatobi, Derawan and Raja Ampat. This program is essential to evaluate stakeholders' perception on the efficiency of MPA management, improve adaptive MPA management by incorporating stakeholder needs, and improve local outreach programs by providing feedback on trends in local perceptions.

A perception monitoring workshop conducted at SEACMPA office in Bali on 2-3 December 2004 marked the initial implementation of this program. The objective of this workshop is to compile monitoring protocol that is aligned with similar monitoring programs at each site with partners. This workshop was facilitated by Johns Hopkins University Center for Communication Program, Indonesia. A total of 17 participants representing partners including: WWF, CRMP, CI, Essex University/Operation Wallacea, Johns Hopkins University, Komodo National Park, and Wakatobi National Park and outreach and/or monitoring coordinators in each SEACMPA marine site attended the workshop. List of participants are included in Appendix 1.

This general monitoring protocol is developed and improved during the workshop. It will serve as an umbrella for SEACMPA to develop its site-specific perception monitoring protocols and for partners to align their similar monitoring programs in the above four mentioned site.

I would like to thank Juan Schoemaker from Johns Hopkins University Center for Communication Program, Indonesia who has delivered his profound technical inputs especially in the methodology section of this protocol.

1. Purpose of this protocol

The purpose of this protocol is to provide guidance for planning and implementation of perception monitoring at each of the four SEACMPA marine conservation sites in Indonesia: Komodo, Wakatobi, Derawan and Raja Ampat. Perception monitoring will focus on the state, use, and management of marine resources.

2. Objectives for perception monitoring

The objectives of this program are two folds:

- a) A monitoring tool that will produce a number of basic quantifiable indicators on community's attitudes e.g.: on rules and regulations, and perceptions e.g.: on resource use conditions that will make it possible to (a) observe trends overtime and (b) assess what impact the management interventions e.g.: outreach and awareness programs and law enforcement, may have on those attitudes and perceptions.
- b) A formative research that will allow MPA managers to become better acquainted with attitudes, perceptions and behaviors in the communities residing in and interacting with MPAs. This research program will:
 - a) produce qualitative and quantitative data portraying the community's awareness, attitudes and behaviors concerning the environment in general and MPAs where they live, in particular;
 - b) identify cultural and socioeconomic factors that may either obstruct or facilitate the adoption of more environmentally responsible practices;
 - c) become a source of information to ascertain the types of management interventions that are more likely to have a noticeable impact on people's attitudes and behaviors. This program will also provide baseline information to monitor trends in the communities' perceptions on management effectiveness and the state of natural resources for the duration of the program intervention. This information is needed to: (1) improve awareness programs; (2) inform adaptive management; (3) measure of management / awareness program effectiveness.

3. Monitoring sites

All four SEACMPA's marine conservation sites (Komodo, East Nusa Tenggara Province; Raja Ampat, Papua Province; Wakatobi, Southeast Sulawesi Province; and Derawan Islands, East Kalimantan Province) will subject to the monitoring process.

4. Methodology

The methodology of study will bring together standard monitoring procedures as described in Bunce and Pomeroy's *Socioeconomic Monitoring Guidelines for Coastal Managers in Southeast Asia* (SocMon SEA). In addition, a senior research advisor from Johns Hopkins' Center for Communication Programs in Indonesia will provide his/her expertise to support the technical aspects of program implementation.

5. General procedures for respondent selection

Data gathering for these studies will be conducted in three mutually complementary stages i.e.: secondary data analysis (qualitative study) and household surveys (quantitative study). Procedures in data collection are as follow:

a) Secondary data analysis.

- i) Ten villages at each site will be purposively selected. Major criteria for selection are villages with: (a) majority of their communities exploiting marine resources in their surrounding areas for daily consumption and/or income generation, (b) large portions of their communities have been subjected to SEACMPA and its partners' management interventions through community awareness and development programs.
- ii) Each field site will compile and organize all information currently available regarding demographics, community infrastructure, social organization, environmental regulations, etc. in the communities under study. Outreach and/or Monitoring Coordinator will provide demographic data by conducting mini censuses to list all households in the 10 villages under study.
- iii) Based on the above information the MPA management team will prepare brief descriptions that will serve as an overall review of the sites' current situation and as

background information to develop the protocols for site-based in-depths, household and individual surveys.

b) Household and individual surveys

- i) At least 30 households per village -from a total of 10 villages- amounting for 300 households per site will be selected for interview. Households will be randomly selected based on the list of household in the village under study provided by SEACMPA field team.
- ii) All members of household age between 15 to 59 years old are eligible for interview. This is the age span in which individuals are more likely to be economically active and involved in their communities' social and economic life. Household members are defined as if the persons are living permanently and share the same kitchen in the household. One man and one woman will be randomly selected from the list of eligible persons in the household for individual interviews. Tables of random selection for men and women have been prepared by technical team of MPA management team in appendix 2. Interviewers will not be allowed to replace the selected individual by another household member.

6. General procedures for interviewer selection

- a) Interviewer will be selected from independent persons who are not currently working as staff, contractor, and consultant of SEACMPA and its partners in the field site under study.
- b) Approximately 4 to 10 interviewers will be hired. Each interview team will have males and females. The number of interviewers may vary across sites, depending on the need and resources.
- c) It is preferable that the selected interviewers hold an undergraduate degree (S1) in anthropology, sociology, marine affairs, and fisheries with ample interviewing skills and experiences.
- d) It is preferable that interviewers are familiar with community under study.
- e) Interviewers at each site will be trained for 3 to 4 days to implement the survey program according to site-based monitoring protocol.

7. General procedures for interview process

- a) A team of independent interviewers will interview the selected informants, following the general and site-based interviewing protocols that will be prepared jointly by the SEACMPA technical staffs.
- b) In the case of the absence of persons in the household, the interviewers should make 3 times attempts to obtain data on that household. If these attempts failed, then interviewers should ignore it and replace it with the next qualified households.
- c) In the case of the absence of selected individual respondent in the household, the interviewers should make 3 times attempt to interview him/her. If these attempts failed, then interviewers should ignore it and replace it with other qualified individuals. If interviewers are only able to interview one out of the two qualified selected persons in a household, then interviewers should still keep the data and report it in his brief notes to field coordinator.
- d) If there are only one man and one woman in the household then interviewers will directly interview them.
- e) The technical team of MPA management team will randomly select additional 10 households and add them to the list of respondent in each selected village as reserve in a case where attempts have been made and still household members are not available.
- f) The interviewers' team should consist of four to seven interviewers with comparable levels of experience in qualitative data gathering and analysis. Having a small team with comparable level of skill is important to ensure that collection and interpretation of data is done consistently.
- g) The independence of interviewers is important because respondents that perceive interviewers as committed to TNC or the MPA management team may be subject to what is known as courtesy bias. This means that they may be reluctant to express unfavorable opinions or may express a more favorable opinion that they really have.
- h) It is equally important that interviewers feel free to report objectively and without constraints, even if they come across some unflattering results.
- i) Site-based interviewing guidelines will be developed based on this general guideline and pre-tested before being used in the field.

- j) The initial monitoring program will be implemented in the year 2005. The survey will then be iterated in the year 2006. The next follow-up survey will be decided later after this first iteration. This decision will be based upon programmatic rather than technical questions. As a general principle, if the MPA management team believes the intervention is having a noticeable impact over a short period of time, the follow up study should be planned for 12 or 18 months after the first iteration. On the other hand, if the intervention is expected to have a noticeable impact over a long term period, a 24 or 36 months time gap after the first iteration would be more appropriate.

8. Questionnaire design

- a) Two types of site-based questionnaires will be developed: (a) questionnaires for household survey, (b) questionnaires for individual survey.
- b) Household questionnaires will be developed to capture the characteristics of community under study. Household demographic indicators offered in the SocMon manual (Table 4.2: Household interview indicators) will be included within the questionnaires. Refer to appendix 4 for household questionnaires.
- c) Individual questionnaire will be developed to capture the respondents' knowledge, attitudes and behaviors on resources status and governance. Questionnaires for males will be slightly different from females. Attitudes and perceptions indicators offered in the SocMon manual (Table 4.2: Household interview indicators) will be specifically included within the questionnaires. Refer to appendix 5 and 6 for individual males and females questionnaires.
- d) Attitudes and perceptions will be measured with Likert-type questions. Respondents will be asked to score their opinions in scales from 1 to 10 and will be asked to express if they are strongly agree, agree, undecided, disagree or strongly disagree with certain statements.

9. Data management and analysis

- a) The data will be entered in excel format. This format is included in the appendix 5 and 6.
- b) Once data entry is completed, SEACMPA should run data editing programs, produce frequency distributions and cross tabulations to ensure that data is free of inconsistencies and meets the required quality standards. For example, the question that has responses ranging from 1 to 6 will only have frequency distribution ranging from 1 to 6. If it comes out from 8 to 9 then the data entered is error and need to be corrected.

- c) The JHU/CCP technical staff will corroborate the quality of data set prior to receiving it from SEACMPA.
- d) Internal consistency (reliability) of responses from Likert-type questions within individual questionnaires will be confirmed with Chronback's alpha coefficients. This statistics indicates the degree to which individual items group together to form combined scale index.

10. Report preparation

- a) Two core reports will be prepared. One will be more technical, detailed in the explanation of the methodology and oriented to a technical and academic audience. The other will focus on the more relevant findings and their programmatic implications, and will be oriented on stakeholders and policy makers who may have little or no understanding of statistical analysis.
- b) These reports will be prepared by SEACMPA. JHU/CCP technical staff, other members of the MPA management team and other interested parties will review and comment on the report.

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- Oakley, K.L., Thomas, L.P., and Fancy, S.G. 2003. Guidelines for long-term monitoring protocols. Wildlife Society Bulletin 31(4):1000-1003.

Appendix 1: Participants of perception monitoring workshop on 2-3 December 2004 at SEACMPA office in Bali.

| No | Name | Position | Institution |
|-----------|----------------------|---------------------------------------|-------------------------|
| 1 | Juan Schoemaker | Resource and evaluation officer | JHU/CCP Indonesia |
| 2 | Dave Smith | University Researcher | Essex University/OpWall |
| 3 | Lida Pet-Soede | Acting Director for Marine | WWF marine Indonesia |
| 4 | Maurice Knight | Chief of Party | CRMP |
| 5 | Anita Kendrick | Sociologist | CRMP |
| 6 | Irdez Azhar | | CI |
| 7 | Veda Santiaji | Outreach & Communication Coordinator | WWF/TNC Wakatobi |
| 8 | Marthen Malo | Community Outreach Coordinator | TNC Komodo |
| 9 | Hesti Widodo | Outreach Program officer | TNC Komodo |
| 10 | Audry J. Siahainenia | Monitoring & Surveillance Coordinator | WWF/TNC/CRMP Derawan |
| 11 | Andreas Muljadi | Monitoring & Logistics Coordinator | TNC Raja Ampat |
| 12 | Anton Suebu | Papua Marine Portfolio Manager | TNC Raja Ampat |
| 13 | Handoko A. Susanto | Constituency & Outreach Coordinator | WWF/TNC/CRMP Derawan |
| 14 | Errys Maart | Staff | Komodo National Park |
| 15 | Ayub | Staff | Wakatobi National Park |
| 16 | Abdul Halim | WCPA & Program support Coordinator | TNC SEACMPA Bali |
| 17 | Peter Mous | Science Manager | TNC SEACMPA Bali |

Appendix 2. Tables of random selection for males and females eligible for interview in a household

| Eligible person order number | Last digit in the household number (see identifier record, n° 6) | | | | | | | | | |
|------------------------------|--|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 3 | 2 | 2 | 3 | 2 | 3 | 2 | 1 | 1 | 3 | 1 |
| 4 | 3 | 4 | 3 | 3 | 1 | 3 | 2 | 4 | 4 | 2 |
| 5 | 2 | 2 | 4 | 2 | 3 | 3 | 3 | 5 | 4 | 5 |
| 6 | 5 | 4 | 2 | 6 | 2 | 3 | 4 | 1 | 4 | 3 |
| 7 | 6 | 1 | 6 | 2 | 6 | 3 | 5 | 4 | 3 | 6 |
| 8 | 3 | 7 | 8 | 4 | 1 | 2 | 5 | 2 | 7 | 2 |

Appendix 3. Questionnaire for household survey

**Marine Protected Areas Assessment Survey
Baseline survey - Household questionnaire 2005
Identification**

| | | | |
|---|--------------------------------------|----------------------|----------------------|
| 1 | PROVINCE _____ | <input type="text"/> | <input type="text"/> |
| 2 | SEACMPA SITE _____ | <input type="text"/> | <input type="text"/> |
| 3 | DESA _____ | <input type="text"/> | <input type="text"/> |
| 4 | NAME OF HEAD OF HOUSEHOLD _____ | | |
| 5 | ADDRESS _____ | | |
| 6 | HOUSEHOLD NUMBER | <input type="text"/> | <input type="text"/> |
| 7 | INTERVIEW DATE..... | <input type="text"/> | <input type="text"/> |
| | | <input type="text"/> | <input type="text"/> |
| | | <input type="text"/> | <input type="text"/> |
| 8 | INTERVIEWER'S NAME AND CODE N° _____ | <input type="text"/> | <input type="text"/> |
| 9 | INTERVIEW RESULT (SEE BELOW) | <input type="text"/> | <input type="text"/> |

RESULT CODE

| | | | |
|-------------------------|----|-----------------------|----|
| QUESTIONNAIRE COMPLETED | 01 | PARTIALLY COMPLETED | 05 |
| NOT AT HOME AT THE TIME | 02 | DWELLING NOT FOUND | 06 |
| LONG-TERM ABSENCE | 03 | DWELLING NOT OCCUPIED | 07 |
| REFUSAL | 04 | OTHER _____ | 08 |

HOUSEHOLD CHARACTERISTICS

| N° | QUESTIONS | ANSWERS | SKIP |
|----|---|---|------|
| 11 | <p>RECORD THE MAIN MATERIAL OF THE FLOOR WITHOUT ASKING</p> <p align="center">CIRCLE ONLY ONE ANSWER</p> <p align="center">IF THERE IS MORE THAN ONE MATERIAL, RECORD THE MATERIAL THAT COVERS THE LARGEST SURFACE OF THE FLOOR</p> | DIRT / EARTH.....1 BAMBOO2 WOOD.....3 BRICK / CONCRETE4 TILE / CERAMIC / GRANITE5 OTHER _____ 6 <p align="center">(SPECIFY)</p> | |

| N° | QUESTIONS | ANSWERS | SKIP |
|----|---|---|------|
| 12 | <p>RECORD THE MAIN MATERIAL OF THE OUTSIDE WALLS WITHOUT ASKING</p> <p>CIRCLE ONLY ONE ANSWER</p> <p>IF THERE IS MORE THAN ONE MATERIAL, RECORD THE MATERIAL THAT COVERS THE LARGEST PART OF THE WALLS</p> | <p>DOES NOT HAVE WALLS0</p> <p>BAMBOO1</p> <p>WOOD.....2</p> <p>BRICK.....3</p> <p>OTHER _____ 4</p> <p>(SPECIFY)</p> | |
| 13 | <p>In your house, do you have...? CIRCLE 0 OR 1 IN <u>ALL</u> ANSWERS</p> <p>Running water inside the house?</p> <p>Electricity?</p> <p>A radio?</p> <p>A TV set?</p> | <p>YA TDK</p> <p>1 0</p> <p>1 0</p> <p>1 0</p> <p>1 0</p> | |
| 14 | <p>Does any member of this household have...? CIRCLE 0 OR 1 IN <u>ALL</u> ANSWERS</p> <p>A rowboat?</p> <p>A bicycle?</p> <p>A motorboat?</p> <p>A motorcycle?</p> <p>A car or a truck?</p> | <p>YA TDK</p> <p>1 0</p> <p>1 0</p> <p>1 0</p> <p>1 0</p> <p>1 0</p> | |
| 15 | <p>What are the main activities of the members of this household? CIRCLE 0 OR 1 IN <u>ALL</u> ANSWERS</p> <p>FISHING</p> <p>TOURISM</p> <p>SEA WEED CULTIVATION</p> <p>FISH CULTURE</p> <p>BOAT OPERATION / SEA TRANSPORTATION</p> <p>SALE OF FISH AND SEAFOOD PRODUCTS</p> <p>OTHER _____</p> <p>(SPECIFY)</p> | <p>YA TDK</p> <p>1 0</p> | |

HOUSEHOLD LISTING FOR MEN

| | 16 | 17 | 18 | 19 | 20 |
|--|--|--|--------------------|---|-------------------------------|
| | NAME | RELATIONSHIP | AGE | ELIGIBILITY | ELIGIBLE PERSONS ORDER NUMBER |
| | Please tell me the name of the head of household and the name of the men who live in this household. I need only the name of the men who usually live here, not the name of those who are here visiting or staying for only a few days. | What's (NAME)'s relationship to the head of household? <i>SEE CODES</i> | How old is (NAME)? | CHECK IF THE PERSON IS 15 TO 59 YEARS OLD | |
| 01 | _____ | 0 1 | □ □ | □ | □ |
| IF HEAD OF HOUSEHOLD IS A WOMAN, WRITE HER NAME IN Q 21 -01 AND LEAVE THE LINE ABOVE BLANK | | | | | |
| 02 | _____ | □ □ | □ □ | □ | □ |
| 03 | _____ | □ □ | □ □ | □ | □ |
| 04 | _____ | □ □ | □ □ | □ | □ |
| 05 | _____ | □ □ | □ □ | □ | □ |
| 06 | _____ | □ □ | □ □ | □ | □ |
| 07 | _____ | □ □ | □ □ | □ | □ |
| 08 | _____ | □ □ | □ □ | □ | □ |
| 09 | _____ | □ □ | □ □ | □ | □ |
| 10 | _____ | □ □ | □ □ | □ | □ |
| 11 | _____ | □ □ | □ □ | □ | □ |
| 12 | _____ | □ □ | □ □ | □ | □ |
| 13 | _____ | □ □ | □ □ | □ | □ |
| 14 | _____ | □ □ | □ □ | □ | □ |
| 15 | _____ | □ □ | □ □ | □ | □ |

RELATIONSHIP CODES

| | | | | | |
|-----------------------------|----|-----------------|----|----------------------------|----|
| HEAD OF HOUSEHOLD | 01 | FATHER | 04 | DOMESTIC HELP | 07 |
| SPOUSE OF HEAD OF HOUSEHOLD | 02 | FATHER IN LAW | 05 | UNRELATED HOUSEHOLD MEMBER | 08 |
| SON, STEPCHILD, SON IN LAW | 03 | OTHER RELATIVES | 06 | OTHER | 09 |

TABLE OF RANDOM NUMBERS FOR MEN'S INDIVIDUAL INTERVIEWS

| Eligible person order number | Last digit in the household number (see identification, n° 6) | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 |
| 3 | 2 | 2 | 3 | 2 | 3 | 2 | 1 | 1 | 3 | 1 |
| 4 | 3 | 4 | 3 | 3 | 1 | 3 | 2 | 4 | 4 | 2 |
| 5 | 2 | 2 | 4 | 2 | 3 | 3 | 3 | 5 | 4 | 5 |
| 6 | 5 | 4 | 2 | 6 | 2 | 3 | 4 | 1 | 4 | 3 |
| 7 | 6 | 1 | 6 | 2 | 6 | 3 | 5 | 4 | 3 | 6 |
| 8 | 3 | 7 | 8 | 4 | 1 | 2 | 5 | 2 | 7 | 2 |

HOUSEHOLD LISTING FOR WOMEN

| | 21 | 22 | 23 | 24 | 25 |
|----|---|--|--------------------|---|-------------------------------|
| | NAME | RELATIONSHIP | AGE | ELIGIBILITY | ELIGIBLE PERSONS ORDER NUMBER |
| | Please tell me the name of the head of household and the name of the women who live in this household. I need only the name of the women who usually live here, not the name of those who are here only visiting or staying for only a few days. | What's (NAME)'s relationship to the head of household? SEE CODES | How old is (NAME)? | CHECK IF THE PERSON IS 15 TO 59 YEARS OLD | |
| 01 | _____ | 0 1 | | | |
| | IF HEAD OF HOUSEHOLD IS A MAN WRITE LEAVE THE LINE ABOVE BLANK | | | | |
| 02 | _____ | | | | |
| 03 | _____ | | | | |
| 04 | _____ | | | | |
| 05 | _____ | | | | |
| 06 | _____ | | | | |
| 07 | _____ | | | | |
| 08 | _____ | | | | |
| 09 | _____ | | | | |
| 10 | _____ | | | | |
| 11 | _____ | | | | |
| 12 | _____ | | | | |
| 13 | _____ | | | | |
| 14 | _____ | | | | |
| 15 | _____ | | | | |

RELATIONSHIP CODES

| | | | | | |
|--------------------------------------|----|-----------------|----|----------------------------|----|
| Head of household | 01 | Mother, | 04 | Domestic help | 07 |
| Spouse of head of household | 02 | Mother in law, | 05 | Unrelated household member | 08 |
| Daughter, stepchild, daughter in law | 03 | Other relatives | 06 | Other | 09 |

TABLE OF RANDOM NUMBERS

| Eligible person order number | Last digit in the household number (see identification, n° 6) | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 |
| 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 3 | 1 | 1 |
| 4 | 4 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 |
| 5 | 3 | 1 | 2 | 3 | 3 | 4 | 4 | 4 | 3 | 2 |
| 6 | 6 | 4 | 4 | 4 | 3 | 5 | 2 | 3 | 2 | 3 |
| 7 | 3 | 3 | 6 | 7 | 6 | 3 | 1 | 5 | 3 | 2 |
| 8 | 7 | 7 | 8 | 8 | 7 | 3 | 7 | 6 | 1 | 7 |

Appendix 4. Questionnaires for individual survey

Marine Protected Areas assessment survey
Baseline survey - Individual questionnaire 2005
Identification

| | | | | | | | | |
|---|--------------------------------------|---|--|--|--|--|--|--|
| 1 | PROVINCE _____ | <table border="1"><tr><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | |
| 2 | SEACMPA SITE _____ | <table border="1"><tr><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | |
| 3 | DESA _____ | <table border="1"><tr><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | |
| 4 | NAME OF HEAD OF HOUSEHOLD _____ | | | | | | | |
| 5 | ADDRESS _____ | | | | | | | |
| 6 | HOUSEHOLD NUMBER | <table border="1"><tr><td></td><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | |
| 7 | INTERVIEW DATE..... | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> YEAR | | | | | | |
| | | | | | | | | |
| 8 | RESPONDENT'S NAME AND LINE N° _____ | <table border="1"><tr><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | |
| 9 | INTERVIEWER'S NAME AND CODE N° _____ | <table border="1"><tr><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | |

SECTION 1: RESPONDENT'S BACKGROUND INFORMATION

| No | QUESTIONS | ANSWERS | SKIP | | | | |
|-----|--|---|------|--|--|--|--|
| 101 | How old are you? | AGE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table> | | | | | |
| | | | | | | | |
| 102 | What is your ethnicity? | | | | | | |
| 103 | What is your religion? | | | | | | |
| 104 | What is your current marital status? <i>CIRCLE ONLY ONE ANSWER</i> | SINGLE (NEVER MARRIED)1 CURRENTLY MARRIED2 SEPARATED/DIVORCED/WIDOW3 | | | | | |
| 105 | Were you born in this village or were you born elsewhere? | BORN IN THIS VILLAGE1 BORN ELSEWHERE2 | →108 | | | | |
| 106 | How long have you lived in this village? <i>CIRCLE ONLY ONE ANSWER</i> | LESS THAN ONE YEAR1 ONE TO THREE YEARS2 THREE TO FIVE YEARS3 MORE THAN FIVE YEARS4 | | | | | |
| 107 | Where did you live before you came to live here? | PROVINCE <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table> KABUPATEN <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table> BORN OUTSIDE INDONESIA 9 0 0 0 | | | | | |
| | | | | | | | |
| | | | | | | | |
| 108 | Have you ever attended school? | YA1 TIDAK0 | →111 | | | | |
| 109 | What is the highest level of school you have attended: primary, junior high, senior high or more than senior high <i>CIRCLE ONLY ONE ANSWER</i> | PRIMARY1 JUNIOR HIGH2 SENIOR HIGH3 MORE THAN SENIOR HIGH4 | | | | | |
| 110 | What is the (grade/year) you completed at that | GRADE / YEAR <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td></tr></table> | | | | | |
| | | | | | | | |
| 111 | Can you read and understand a letter or a newspaper easily, with difficulty or not at all? <i>CIRCLE ONLY ONE ANSWER</i> | EASILY1 WITH DIFFICULTY2 NOT AT ALL3 | →113 | | | | |
| 112 | How often do you read a newspaper or a magazine? <i>CIRCLE ONLY ONE ANSWER</i> | EVERY DAY1 SIX DAYS TO ONE DAY A WEEK2 BETWEEN ONCE A WEEK AND ONCE A MONTH3 VERY SELDOM4 NEVER5 | | | | | |

| | | | |
|-----|---|---|------|
| 113 | How often do you listen to the radio? CIRCLE ONLY ONE ANSWER | EVERY DAY1 SIX DAYS TO ONE DAY A WEEK2 BETWEEN ONCE A WEEK AND ONCE A MONTH3 VERY SELDOM4 NEVER.....5 | |
| 114 | How often do you watch television? CIRCLE ONLY ONE ANSWER | EVERY DAY1 SIX DAYS TO ONE DAY A WEEK2 BETWEEN ONCE A WEEK AND ONCE A MONTH3 VERY SELDOM4 NEVER.....5 | |
| 115 | What is your main occupation? That is what do you do for a living? CIRCLE ONLY ONE ANSWER | _____ _____ NOT WORKING AT PRESENT 000 | →118 |
| 116 | In addition to your main occupation, do you have other income-generating activities? | YA1 TIDAK0 | →201 |
| 117 | What other income-generating activities do you have? WRITE DOWN ALL THE RESPONDENT MENTIONS | _____ _____ _____ | |
| 118 | Did you have a job or did you work in any income-generating activity during the last 12 months? | YA1 TIDAK0 | |
| 119 | What's the reason why you are not working now? | UNEMPLOYED/LOOKING FOR WORK1 SICKNESS / DISABILITY2 TOO OLD TO WORK.....3 IT IS NOT THE SEASON FOR HIM TO WORK4 SOMEBODY ELSE PROVIDES FOR HIM5 OTHER _____ 6 (SPECIFY) | |

SECTION 2: ATTITUDES WITH REGARD TO THE ENVIRONMENT

| N o | QUESTIONS | ANSWERS | SKIP |
|--------|--|---|------|
| 201 | Now I would like to read a list of problems that some communities like yours face in Indonesia. Please tell me if in the case of your village these represent major problems, minor problems or no problem at all. CIRCLE THE RESPONDENT'S ANSWERS | MAJOR PROBLEM MINOR PROBLEM NO PROBLEM DONT KNOW UNDECIDED | |

| No | QUESTIONS | ANSWERS | SKIP |
|-----|--|--|-------------------------------------|
| | <p>It is hard for people to find work.....</p> <p>People who working do not earn enough money.....</p> <p>Health facilities don't offer adequate services</p> <p>Children don't have good schools to go to.....</p> <p>The transportation to and from the village is not adequate.....</p> <p>Many people in the village are poor</p> <p>The coastal areas are being destroyed</p> <p>The sea water is being contaminated by waste</p> <p>There is less fish and marine life than it used to</p> | <p>2 1 0 8</p> | |
| 202 | <p>How would you rate the conditions of coral reefs near your village: very good, good, bad or very bad?</p> <p>CIRCLE ONLY ONE ANSWER</p> | <p>VERY GOOD1</p> <p>GOOD2</p> <p>BAD.....3</p> <p>VERY BAD4</p> <p>DON'T KNOW / NOT SURE8</p> | |
| 203 | <p>And how would you rate the conditions of mangroves around your village?</p> <p>CIRCLE ONLY ONE ANSWER</p> | <p>VERY GOOD1</p> <p>GOOD2</p> <p>BAD.....3</p> <p>VERY BAD4</p> <p>DON'T KNOW / NOT SURE8</p> | |
| 204 | <p>Do you think that the conditions of the marine environment around your village are better, the same or worse than they were 10 years ago?</p> <p>CIRCLE ONLY ONE ANSWER</p> | <p>BETTER1</p> <p>THE SAME.....2</p> <p>WORSE.....3</p> <p>DON'T KNOW / NOT SURE8</p> | |
| 205 | <p>Do you think that during the next 10 years the condition of the marine environment around your village will improve, will stay the same or will get worse?</p> <p>CIRCLE ONLY ONE ANSWER</p> | <p>WILL IMPROVE1</p> <p>WILL STAY THE SAME.....2</p> <p>WILL GET WORSE.....3</p> <p>DON'T KNOW / NOT SURE8</p> | |
| 206 | <p>Do you believe it is a good idea to demarcate some coastal areas where the surroundings and the marine life can be protected and preserved?</p> <p>CIRCLE ONLY ONE ANSWER</p> | <p>NO.....0</p> <p>YES1</p> <p>DON'T KNOW / NOT SURE8</p> | <p>➔207</p> <p>➔208</p> <p>➔209</p> |
| 207 | <p>Why do you think it isn't a good idea?</p> <p>WRITE THE RESPONSE IN A FEW WORDS</p> | <p>_____</p> <p>_____</p> <p>_____</p> | |

| No | QUESTIONS | ANSWERS | SKIP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|--|-------------------|----------------|-----------|-------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| 208 | Why do you think it is a good idea? WRITE THE RESPONSE IN A FEW WORDS | <hr/> <hr/> <hr/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 209 | Thinking about the future, do you think that such protected areas would beneficial, detrimental or would not make a difference to your family and your village CIRCLE ONLY ONE ANSWER | BENEFICIAL1 DETRIMENTAL.....2 WOULD NOT MAKE A DIFFERENCE3 DON'T KNOW / NOT SURE8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 210 | I will read you some statements please tell me if you strongly agree, you agree, you are undecided, you disagree or strongly disagree with these statements. Some of these statements are contradictory, and keep in mind that there are no right or wrong choices. We only want to know your opinion. CIRCLE THE RESPONDENT'S ANSWERS The coral reefs around my village are in good condition and they don't need special protection The mangroves around my village are in good condition and they don't need special protection It is more important for people to provide income for their families than to worry about the conditions of the environment Most people in my village don't care about protecting the environment Most people in my village don't believe protecting the natural surroundings is worth the effort..... There isn't much I or other people in my village can do to protect the surrounding coastal and marine environment..... Even if everybody in the village makes an effort to improve the environment things will continue to get worse People who worry about protecting the sea and coastal areas care more about fish than they care about people..... I as an individual can do many things to protect marine environment including coastal resources around my village..... Working collaboratively, the people in my village can do many things to protect the marine environment including coastal resources People who destroy the natural environment should be punished People who capture protected species should be punished Damaging our coastal environment now will make our lives more difficult in the future | <table border="1"> <thead> <tr> <th>STRONGLY DISAGREE</th> <th>DISAGREES</th> <th>UNDECIDED</th> <th>AGREE</th> <th>STRONGLY AGREE</th> </tr> </thead> <tbody> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> </tbody> </table> | STRONGLY DISAGREE | DISAGREES | UNDECIDED | AGREE | STRONGLY AGREE | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |
| STRONGLY DISAGREE | DISAGREES | UNDECIDED | AGREE | STRONGLY AGREE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No | QUESTIONS | ANSWERS | SKIP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|--|--|-------------------|----------------|-----------|-------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------------------------|---|---|---|---|---|---|---|---|---|---|---|--|
| 211 | <p>Now I will read you some statements related to Coral Reefs. Again, please tell me if you strongly agree, you agree, you are undecided, you disagree or strongly disagree with these statements.</p> <p style="text-align: center;">CIRCLE THE RESPONDENT'S ANSWERS</p> <p>The reefs are important for protecting beaches and coastal villages from storm waves.....</p> <p>Protecting the coral reefs today will sustain the livelihood of future generations in my village</p> <p>Fishing around coral reefs should be regulated to allow fish and coral to grow.</p> <p>In the long-run fishing would be better if we cleared all corals</p> <p>Only people who fish or dive think it is important to preserve coral reefs</p> <p>There isn't much I or other people in my village can do to protect the surrounding coastal and marine environment.....</p> <p>Seagrass beds have no value to people.....</p> <p>Mangroves have no value to people</p> | <table border="1"> <thead> <tr> <th>STRONGLY DISAGREE</th> <th>DISAGREES</th> <th>UNDECIDED</th> <th>AGREE</th> <th>STRONGLY AGREE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </tbody> </table> | STRONGLY DISAGREE | DISAGREES | UNDECIDED | AGREE | STRONGLY AGREE | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |
| STRONGLY DISAGREE | DISAGREES | UNDECIDED | AGREE | STRONGLY AGREE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 212 | <p>What do you think are the main environmental problems are in the shores and the sea around your village</p> <p style="text-align: center;">DON'T READ THE ANSWERS CIRCLE 0 OR 1 IN <u>ALL</u> ANSWERS</p> <p>OVERFISHING / DIMINISHING FISH STOCKS</p> <p>FISHING WITH EXPLOSIVES</p> <p>FISHING WITH CYANIDE</p> <p>FISHING WITH FISH TRAP (BUBU).....</p> <p>MANGROVE CUTTING</p> <p>CORAL MINING</p> <p>WATER CONTAMINATION.....</p> <p>DEFORESTATION OF SURROUNDING AREAS</p> <p>SOIL EROSION IN SURROUNDING AREAS</p> <p>INVASION OF FOREIGN SPECIES.....</p> <p>OVERPOPULATION / TOO MANY PEOPLE LIVING IN THE AREA</p> <p>OTHER PROBLEMS (SPECIFY) _____</p> <p>DON'T KNOW / NOT SURE</p> <p>THERE ARE NO MAJOR ENVIRONMENTAL PROBLEMS</p> | <table border="1"> <thead> <tr> <th>YA</th> <th>TDK</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> </tbody> </table> | YA | TDK | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | <p>→ 301</p> <p>→ 301</p> | | | | | | | | | | | | |
| YA | TDK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 213 | <p>In your opinion, who has the main responsibility for creating these problems?</p> <p style="text-align: center;">CIRCLE ONLY ONE. IF THE RESPONDENT CITES MORE THAN ONE ASK OF WHICH ONE WHO HAS THE <u>MAIN</u> RESPONSIBILITY</p> | <p>THE PEOPLE IN THE VILLAGE.....01</p> <p>TOURISTS/VISITORS</p> <p>THE BUPATI</p> <p>THE VILLAGE LEADER</p> <p>NATIONAL GOVERNMENT</p> <p>PRIVATE BUSINESSES.....</p> <p>FISHERMEN.....</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| No | QUESTIONS | ANSWERS | SKIP |
|-----|---|---|------|
| | OTHER (SPECIFY) _____ _____ | 1 0 | |
| 304 | In your opinion is it prohibited to fish any kind of fish at certain areas in these marine protected areas (MPA)? CIRCLE ONLY ONE ANSWER | ALL MPA AREA1 ONLY AT CERTAIN AREAS.....2 OTHER RESPOND.....3 DON'T KNOW / NOT SURE8 | |
| 305 | Is your village in or near a marine protected area? CIRCLE ONLY ONE ANSWER | NO.....0 YES.....1 DON'T KNOW / NOT SURE8 | |
| 306 | Now I will read a ways of fishing that people in your village and other communities like yours use. Please tell me if fishing techniques are allowed or not allowed CIRCLE THE RESPONDENT'S ANSWERS | ALLOWED NOT ALLOWED DON'T KNOW | |
| | Hook and line..... | 1 0 8 | |
| | Fish trap (Bubu) | 1 0 8 | |
| | Trawling | 1 0 8 | |
| | Gill and net | 1 0 8 | |
| | Seine net..... | 1 0 8 | |
| | Fishing with explosives (Dynamite / C4)..... | 1 0 8 | |
| | Fishing with cyanide | 1 0 8 | |
| | Hookah compressor..... | 1 0 8 | |
| 307 | Now I read a list of activities. Please tell me if these activities are allowed or not allowed in the parks CIRCLE THE RESPONDENT'S ANSWERS | ALLOWED NOT ALLOWED DON'T KNOW | |
| | Reef gleaning..... | 1 0 8 | |
| | Capturing or hunting turtles | 1 0 8 | |
| | Shark fishing..... | 1 0 8 | |
| | Coral mining | 1 0 8 | |
| | Sand mining..... | 1 0 8 | |
| | Capturing crabs..... | 1 0 8 | |
| | Swimming or scuba diving..... | 1 0 8 | |
| | Extracting wood from the mangrove..... | 1 0 8 | |
| | Playing on the beach..... | 1 0 8 | |
| | Fishing sea cucumbers | 1 0 8 | |
| | Gathering giant clams | 1 0 8 | |

| No | QUESTIONS | ANSWERS | SKIP | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---|--|------------|-----------|---------------|------------|--|---|---|---|--|---|---|---|--|---|---|---|--|---|---|---|--|---|---|---|--|---|---|---|--|
| 308 | Please tell me if a person may face the following penalties for breaking the parks' rules CIRCLE THE RESPONDENT'S ANSWERS Written warning Fine in rupiah..... Confiscation of catch Confiscation of fishing gear Confiscation of boat..... Confiscation of house..... Prison | <table border="1"> <tr> <td></td> <td>WILL FACE</td> <td>WILL NOT FACE</td> <td>DON'T KNOW</td> </tr> <tr> <td></td> <td>1</td> <td>0</td> <td>8</td> </tr> </table> | | WILL FACE | WILL NOT FACE | DON'T KNOW | | 1 | 0 | 8 | | 1 | 0 | 8 | | 1 | 0 | 8 | | 1 | 0 | 8 | | 1 | 0 | 8 | | 1 | 0 | 8 | |
| | WILL FACE | WILL NOT FACE | DON'T KNOW | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 309 | Do you think that in your village most of the people, some of the people or few of the people know what the park rules and regulations are? CIRCLE ONLY ONE ANSWER | MOST OF THE PEOPLE KNOW1 SOME OF THE PEOPLE KNOW2 FEW OF THE PEOPLE KNOW3 DON'T KNOW / NOT SURE KNOW8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 310 | Do you think that most of the people, some of the people or few of the people in your village follow park rules and regulations? CIRCLE ONLY ONE ANSWER | MOST OF THE PEOPLE FOLLOW RULES1 SOME OF THE PEOPLE FOLLOW RULES2 FEW OF THE PEOPLE FOLLOW RULES3 DON'T KNOW / NOT SURE8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SECTION 4: EXPOSURE TO INFORMATION

| No | QUESTIONS | ANSWERS | SKIP | | |
|-----|--|---|--|--|--|
| 401 | Have you heard any radio programs or messages discussing environmental problems in the marine or coastal areas during the last 12 months? CIRCLE ONLY ONE ANSWER | NO.....0 YES.....1 DON'T KNOW / NOT SURE8 | ➔404 ➔402 ➔404 | | |
| 402 | What programs or messages have you heard? WRITE THE RESPONSE IN A FEW WORDS | _____ _____ _____ | | | |
| 403 | Approximately how many times have you heard such messages during the last 12 months? | NUMBER OF TIMES..... DON'T KNOW / NOT SURE98 | <table border="1" style="width: 50px; height: 20px; margin-left: auto; margin-right: auto;"> <tr> <td style="width: 25px;"></td> <td style="width: 25px;"></td> </tr> </table> | | |
| | | | | | |
| 404 | Have you heard an expert talking about environmental problems around your community during the last 12 | NO.....0 | ➔407 | | |

| No | QUESTIONS | ANSWERS | SKIP |
|-----|--|--|--|
| | months? CIRCLE ONLY ONE ANSWER | YES 1 DON'T KNOW / NOT SURE 8 | →405 →407 |
| 405 | What did the expert(s) talk about in particular? WRITE THE RESPONSE IN A FEW WORDS | _____ _____ _____ | |
| 406 | Have you heard an expert talk about the environment only once or more than once during the last 12 months? | ONLY ONCE 1 MORE THAN ONCE 2 | |
| 407 | Have you talked to friends or relatives about environmental problems affecting your village during the last 12 months? CIRCLE ONLY ONE ANSWER | NO 0 YES 1 DON'T KNOW / NOT SURE 8 | |
| 408 | Have you read any brochures discussing environmental problems in the marine or coastal areas during the last 12 months? CIRCLE ONLY ONE ANSWER | NO 0 YES 1 DON'T KNOW / NOT SURE 8 | |
| 409 | What are your major sources of information? WRITE DOWN ALL THE RESPONDENT MENTIONS | | |
| 410 | What are your preferred major sources of information? WRITE DOWN ALL THE RESPONDENT MENTIONS | | |
| 411 | Have you heard of the expression "mariculture"? CIRCLE ONLY ONE ANSWER | NO 0 YES 1 DON'T KNOW / NOT SURE 8 | <input type="checkbox"/> 413 <input type="checkbox"/> 412 <input type="checkbox"/> 413 |
| 412 | What does mariculture mean to you? WRITE THE RESPONSE IN A FEW WORDS | _____ _____ _____ | |
| 413 | Have you heard of "seaweed farming"? CIRCLE ONLY ONE ANSWER | NO 0 YES 1 DON'T KNOW / NOT SURE 8 | <input type="checkbox"/> 501 <input type="checkbox"/> 414 <input type="checkbox"/> 501 |
| 414 | What do you think seaweed farming is? WRITE THE RESPONSE IN A FEW WORDS | _____ _____ _____ | |

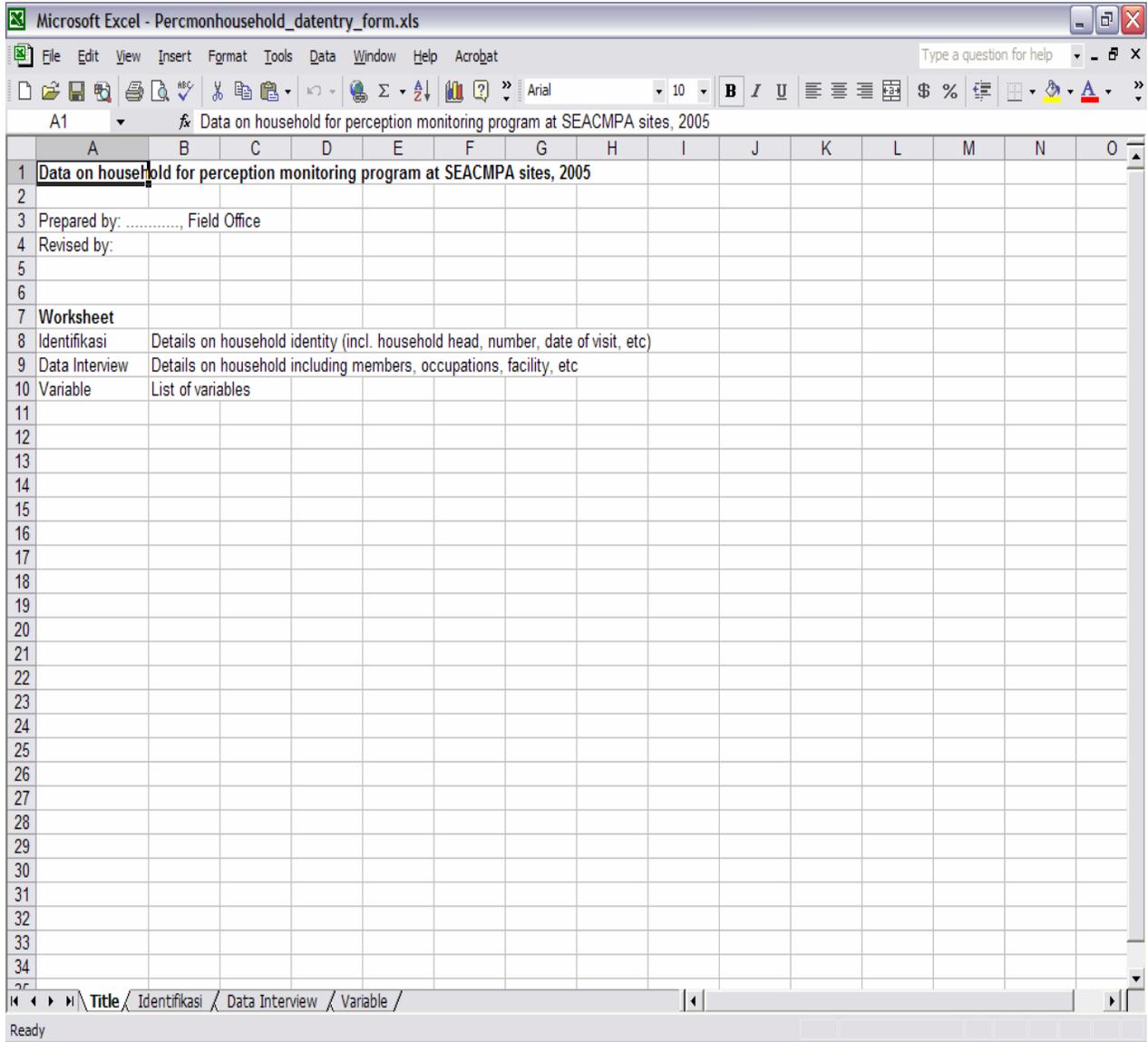
| No | QUESTIONS | ANSWERS | SKIP |
|----|-----------|---------|------|
| | | | |

SECTION 5: PARTICIPATION IN STAKEHOLDER ORGANIZATIONS

| No | QUESTIONS | ANSWERS | SKIP |
|-----|--|--|----------------------|
| 501 | Have you ever heard about the presence of environmental stakeholder organization in your village during the last 12 months? CIRCLE ONLY ONE ANSWER | NO.....0 YES.....1 DON'T KNOW / NOT SURE8 | ➔END ➔502 ➔END |
| 502 | Have you ever participated in this organization during the last 12 months? | NO.....0 YES.....1 DON'T KNOW / NOT SURE8 | ➔404 ➔503 ➔404 |
| 503 | What activities have you participated in? WRITE THE RESPONSE IN A FEW WORDS | _____ _____ _____ | |
| 504 | Approximately how many times have you participated in such activities during the last 12 months? | NUMBER OF TIMES _____ <input type="text"/> <input type="text"/> DON'T KNOW / NOT SURE98 | |
| 505 | Do you think that this organization is beneficial to accommodate your concerns in marine and coastal environmental management? | NO.....0 YES.....1 DON'T KNOW / NOT SURE8 | ➔404 ➔507 ➔END |
| 506 | Why do you think this organization is not beneficial? WRITE THE RESPONSE IN A FEW WORDS | | |
| 507 | Why do you think this organization is beneficial? | | |

| N o | QUESTIONS | ANSWERS | SKIP |
|----------------|--------------------------------------|----------------|-------------|
| | WRITE THE RESPONSE IN A FEW WORDS | | |

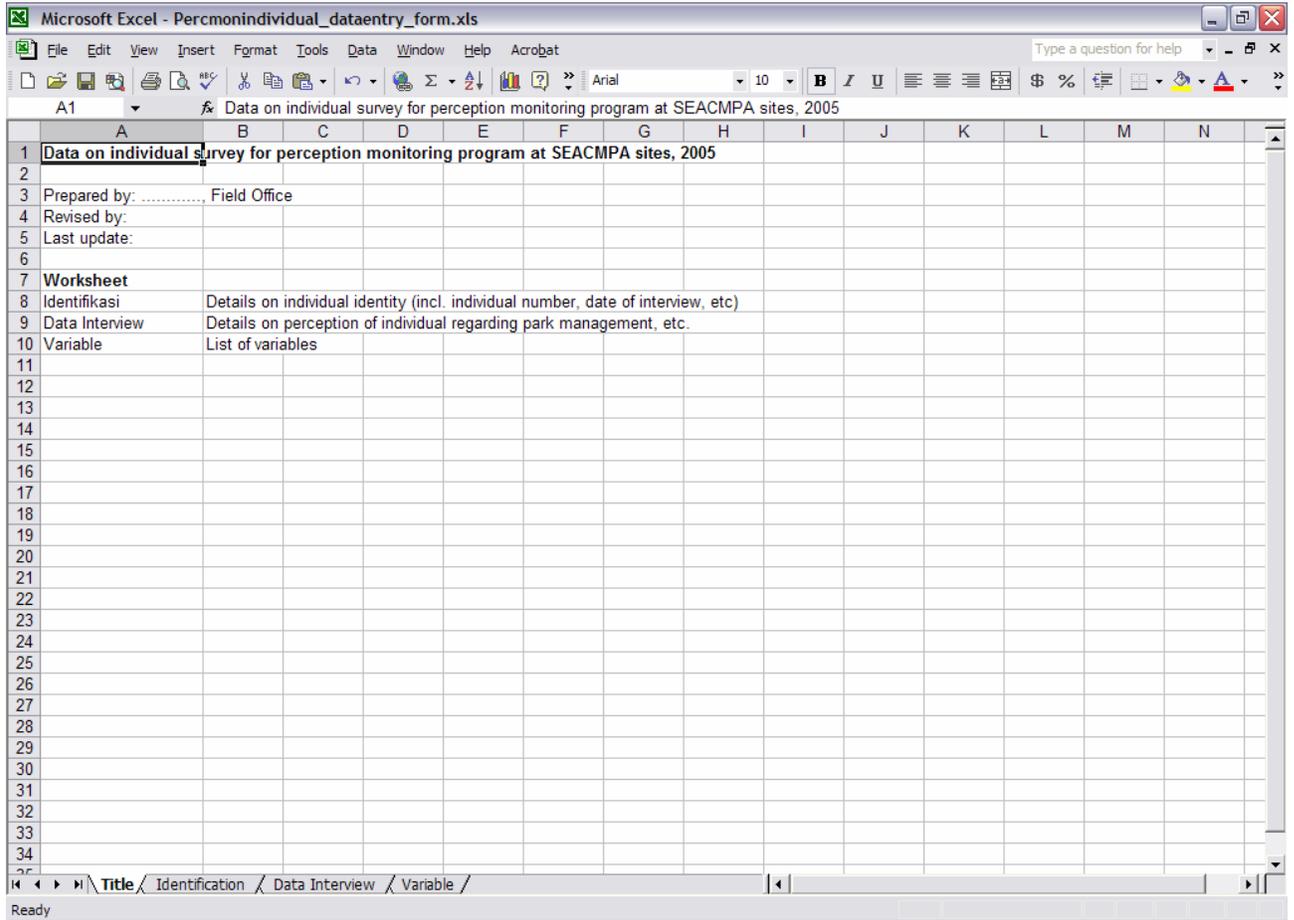
Appendix 5. Format for data entry for household questionnaires in Excel



List of variables for household questionnaires

| Variable | Worksheet | Description |
|----------|----------------|---|
| 1A | Identification | Province name, where site belongs to |
| 1B | Identification | Province code |
| 2A | Identification | SEACMPA office name |
| 2B | Identification | SEACMPA office code |
| 3A | Identification | Village name |
| 3B | Identification | Village code |
| 4 | Identification | Head of household |
| 5 | Identification | Address of household |
| 6 | Identification | Household number |
| 7A | Identification | Date of interview |
| 7B | Identification | Month of interview |
| 7C | Identification | Year of interview |
| 8A | Identification | Interviewer name |
| 8B | Identification | Interviewer code |
| 9A | Identification | Interview result |
| 9B | Identification | Interview result code |
| 11 | Data interview | Main material of floor |
| 12 | Data interview | Main material of wall |
| 13A | Data interview | Running water inside the house |
| 13B | Data interview | Electricity available |
| 13C | Data interview | Radio |
| 13D | Data interview | TV |
| 14A | Data interview | Row boat |
| 14B | Data interview | Bicycle |
| 14C | Data interview | Motor boat |
| 14D | Data interview | Motor bike |
| 14E | Data interview | Car/pick up |
| 15A | Data interview | Fishing as main activity |
| 15B | Data interview | Tourism as main activity |
| 15C | Data interview | Seaweed culture as main activity |
| 15D | Data interview | Mariculture as main activity |
| 15E | Data interview | Boat operation as main activity |
| 15F | Data interview | Selling marine product as main activity |
| 15G | Data interview | Other than above |
| 16 | Data interview | Head of household (male) |
| 17 | Data interview | Relationship code |
| 18 | Data interview | Ages |
| 19 | Data interview | Eligibility |
| 20 | Data interview | Eligible persons order number |
| 21 | Data interview | Head of household (female) |
| 22 | Data interview | Relationship code |
| 23 | Data interview | Ages |
| 24 | Data interview | Eligibility |
| 25 | Data interview | Eligible persons order number |

Appendix 6. Format for data entry for individual questionnaires in Excel



List of variables for individual questionnaires

| Variable | Worksheet | Description |
|----------|----------------|--|
| 1A | Identifikasi | Province name where sites belong to |
| 1B | Identifikasi | Province code |
| 2A | Identifikasi | SEACMPA field office |
| 2B | Identifikasi | SEACMPA field office code |
| 3A | Identifikasi | Village |
| 3B | Identifikasi | Village code |
| 4 | Identifikasi | Head of household |
| 5 | Identifikasi | Address |
| 6 | Identifikasi | Household number |
| 7A | Identifikasi | Date of interview |
| 7B | Identifikasi | Month of interview |
| 7C | Identifikasi | Year of interview |
| 8A | Identifikasi | Respondent name |
| 8B | Identifikasi | Respondent's line number |
| 9A | Identifikasi | Interviewer |
| 9B | Identifikasi | Interviewer code |
| 6 | Data interview | Household number |
| 101 | Data interview | Sex |
| 102 | Data interview | Age |
| 103 | Data interview | Tribe |
| 104 | Data interview | Religion |
| 105 | Data interview | Marital status |
| 106 | Data interview | Place of birth |
| 107 | Data interview | Time of living in the village |
| 108 | Data interview | Address prior to residing in the village |
| 109 | Data interview | Education |
| 110 | Data interview | Level of education |
| 111 | Data interview | Highest level of education |
| 112 | Data interview | Ability to read and write |
| 113 | Data interview | Frequency of reading newspaper |
| 114 | Data interview | Frequency of listening to radio |
| 115 | Data interview | Frequency of watching TV |
| 116 | Data interview | Main occupation |
| 117 | Data interview | Other side jobs |
| 118 | Data interview | Type of side jobs |
| 119 | Data interview | Whether respondent works during last 12 months |
| 120 | Data interview | Reason for not working |
| 201A | Data interview | Difficulties to find job |
| 201B | Data interview | Earn not enough for family |
| 201C | Data interview | Health service is not enough |
| 201D | Data interview | School is not enough for children |
| 201E | Data interview | Transportation to/from village is not enough |
| 201F | Data interview | Many villagers are poor |
| 201G | Data interview | Coastal areas being damages |
| 201H | Data interview | Seawater is contaminated with rubbish |
| 201I | Data interview | Fish and other marine biotas are declining |
| 202 | Data interview | Conditions of reef around village |
| 203 | Data interview | Conditions of mangrove around village |
| 204 | Data interview | Conditions of seawater around village |
| 205 | Data interview | Conditions of seawater around village 10 years later |

| | | |
|------|----------------|--|
| 206 | Data interview | Opinions on delineating seawater for management |
| 207 | Data interview | Reason the above is not good idea |
| 208 | Data interview | Reason the above is good idea |
| 209 | Data interview | Opinions on benefits of MPA |
| 210A | Data interview | Coral reef conditions around village |
| 210B | Data interview | Conditions of mangrove around village |
| 210C | Data interview | Perseption that income is more important than conservation |
| 210D | Data interview | Community awareness of environemt |
| 210E | Data interview | Believe that usefull to protect ennvirnement |
| 210F | Data interview | Things that can be done to protect environment |
| 210G | Data interview | Although people doing something, environment conditions still worst |
| 210H | Data interview | Environmentalist care more to environment than people |
| 210I | Data interview | I can do many things to protect environment |
| 210J | Data interview | Villagers can together protect environment |
| 210K | Data interview | Nature destroyer must be punish |
| 210L | Data interview | Catching illegal animals must be punish |
| 210M | Data interview | Coastal damages makes live more worst |
| 211A | Data interview | Coral reef important from waves protection |
| 211B | Data interview | Coral reef protection ensure livelihood sustainability |
| 211C | Data interview | Fishing needs regulation to ensure fish to grow |
| 211D | Data interview | Fishing yield better if coral reefs were destroyed |
| 211E | Data interview | Only people who fish or dive think important to preserve environment |
| 211F | Data interview | Not much can be done to protect environment |
| 211G | Data interview | Seaweed doesnot have benefits for villagers |
| 211H | Data interview | Mangrove doesnot have benefits for villagers |
| 212A | Data interview | Overfishing |
| 212B | Data interview | Dynamite fishing |
| 212C | Data interview | Cyanide fishing |
| 212D | Data interview | Trap fishing (bubu) |
| 212E | Data interview | Mangrove cutting |
| 212F | Data interview | Coral mining |
| 212G | Data interview | Water contaminated |
| 212H | Data interview | Deforestation |
| 212I | Data interview | Soil erosion |
| 212J | Data interview | Invasion of foreign species |
| 212K | Data interview | Village overpopulation |
| 212L | Data interview | Others than the above |
| 212M | Data interview | Don't know |
| 212N | Data interview | No environmental problems |
| 213 | Data interview | Main cause of problems at village |
| 214 | Data interview | Person/organization able to handle environmental problem |
| 215 | Data interview | Can the above hanlde the problem |
| 301 | Data interview | Ever heard term of MPA |
| 302 | Data interview | Ever heard marine areas regulated for use |
| 303A | Data interview | Areas protected by laws |
| 303B | Data interview | Areas where fishing is regulated |
| 303C | Data interview | Others than the above |
| 304 | Data interview | Catching fish at MPA is prohibited |
| 305 | Data interview | Village is within MPA |
| 306A | Data interview | Fishing |
| 306B | Data interview | Trap fishing (bubu) |

| | | |
|------|----------------|---|
| 306C | Data interview | Trawl |
| 306D | Data interview | Gill net |
| 306E | Data interview | Encircle net |
| 306F | Data interview | Dynamite fishing |
| 306G | Data interview | Cyanide fishing |
| 306H | Data interview | Compressor hookah |
| 307A | Data interview | Reef gleaning |
| 307B | Data interview | Catching turtle |
| 307C | Data interview | Fishing for Shark |
| 307D | Data interview | Coral mining |
| 307E | Data interview | Sand mining |
| 307F | Data interview | Catching crab |
| 307G | Data interview | Swimming/diving |
| 307H | Data interview | Mangrove cutting |
| 307I | Data interview | Playing in the beach |
| 307J | Data interview | Harvesting sea cucumber |
| 308A | Data interview | Written warning |
| 308B | Data interview | Fine in rupiah |
| 308C | Data interview | Confiscation of catch |
| 308D | Data interview | Confiscation of gear |
| 308E | Data interview | Confiscation of boat |
| 308F | Data interview | Confiscation of home |
| 308G | Data interview | Prison |
| 309 | Data interview | Villager know regulation at National Park |
| 310 | Data interview | Few of villager follow rules |
| 401 | Data interview | Listen to environment messages from radio |
| 402 | Data interview | Type of messages hearded |
| 403 | Data interview | Frequency of listening to the messages |
| 404 | Data interview | Heard expert talk about environment for last 12 months |
| 405 | Data interview | What did he/she say |
| 406 | Data interview | Frequency of expert talking about environment issues |
| 407 | Data interview | Talk to family/friends on environment issues |
| 408 | Data interview | Ever read brochure on marine environment |
| 409 | Data interview | Main source of information |
| 410 | Data interview | Most preferred source of information |
| 411 | Data interview | Ever heard mariculture terminology |
| 412 | Data interview | Definition of mariculture |
| 413 | Data interview | Ever heard seaweed culture |
| 414 | Data interview | Definition of seaweed culture |
| 501 | Data interview | Ever heard stakeholder organizations in the village |
| 502 | Data interview | Ever participated in the organizations |
| 503 | Data interview | Type of activities attended |
| 504 | Data interview | Frequency of participations |
| 505 | Data interview | Any benefits as vehicle to provide inputs for resource management |
| 506 | Data interview | Reasons for the organization has no benefit |
| 507 | Data interview | Reason for the organization has benefit |

Appendix 7. Work breakdown structure for perception monitoring program period Nov 04-Nov 05.

| Microsoft Excel - WBS for SEACMPA Percmon_dec04_shortened.xls | | | | | | | | | | | | | | | | | | | | |
|---|--|--|--|-------------------------|---------------------------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Type a question for help | | | | | | | | | | | | | | | | | | | | |
| G6 W1 Dec 04 | | | | | | | | | | | | | | | | | | | | |
| Project Name: Perception Monitoring at four SEACMPA marine conservation sites | | | | | | | | | | | | | | | | | | | | |
| Duration: November 2004 - November 2005 | | | | | | | | | | | | | | | | | | | | |
| No | Activities | Benchmark/Deliverables | Cost Driver | Person in lead | Person in support | Deadline | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | |
| 1 | Finalizing MOU and processing contract | MOU and contract are signed by both parties | consultancy fees, phone call | Halim | Yanti, Danang, Andi | Dec 2004 Feb 2005 | █ | █ | | | | | | | | | | | | |
| 2 | Perc mon workshop in Bali | General perception monitoring protocol is developed | workshop materials (book, pens, file holders), photo | Halim | Peter, Susan, Novi, Rizal, Sudi | W1 Dec 04 | | █ | | | | | | | | | | | | |
| 3 | Identify and contract independent | | | | | | | | | | | | | | | | | | | |
| a. | Komodo | 5 interviewers are hired | interviewer fees | Marthen Malo | AH, DA, DW | 31-Jan-05 | | | █ | | | | | | | | | | | |
| b. | Wakatobi | 5 interviewers are hired | interviewer fees | Veda | AH, DA, DW | 31-Jan-05 | | | █ | | | | | | | | | | | |
| c. | Raja Ampat | 5 interviewers are hired | interviewer fees | Andreas | AH, DA, DW | 15-Feb-05 | | | █ | █ | | | | | | | | | | |
| d. | Derawan | 5 interviewers are hired | interviewer fees | Audrie & Handoko | AH, DA, DW | 15-Feb-05 | | | █ | █ | | | | | | | | | | |
| 4 | Secondary data analysis | | | | | | | | | | | | | | | | | | | |
| a. | Komodo | * 10 target villages are selected * demography (at least list of households) of selected villages are available | transportation and accomodation to/in the selected villages | Halim and Marthen Malo | field team | 28-Feb-05 | | | █ | █ | | | | | | | | | | |
| b. | Wakatobi | * 10 target villages are selected * demography (at least list of households) of selected villages are available | transportation and accomodation to/in the selected villages | Halim and Veda | field team | 28-Feb-05 | | | █ | █ | | | | | | | | | | |
| c. | Raja Ampat | * 10 target villages are selected * demography (at least list of households) of selected villages are available | transportation and accomodation to/in the selected villages | Halim and Andreas | field team | 30-Apr-05 | | | █ | █ | █ | █ | | | | | | | | |
| d. | Derawan | * 10 target villages are selected * demography (at least list of households) of selected villages are available | transportation and accomodation to/in the selected 10 villages | Halim, Audrie & Handoko | field team | 28-Feb-05 | | | █ | █ | | | | | | | | | | |
| 5 | Training workshop for | | | | | | | | | | | | | | | | | | | |

| Microsoft Excel - WBS for SEACMPA Percmon_dec04_shortened.xls | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|-------------------------|------------------|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|
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| G6 W1 Dec 04 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | | | | | | |
| 16 | d. Derawan | * 10 target villages are selected * demography (at least list of households) of selected villages are available | transportation and accomodation to/in the selected 10 villages | Halim, Audrie & Handoko | field team | 28-Feb-05 | | | | | | | | | | | | | | | | | | | | |
| 17 | 5 Training workshop for interviewers in each site including pre-testing questionnaires | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | a. Komodo | *Site-specific protocols including questionnaires are developed and tested *interviewers understand the protocols and techniques to interview *Interviewers understand the purpose of program | *transportation and accomodation for Halim in Komodo for 10 days *photo copy, purchasing books, pens, etc. | AH | Marthen Malo | 10-Apr-05 | | | | | | | | | | | | | | | | | | | | |
| 19 | b. Wakatobi | *Site-specific protocols including questionnaires are developed and tested *interviewers understand the protocols and techniques to interview *Interviewers understand the purpose of program | *transportation and accomodation for Halim in Wakatobi for 10 days *photo copy, purchasing books, pens, etc. | AH | Veda | 20-Mar-05 | | | | | | | | | | | | | | | | | | | | |
| 20 | c. Raja Ampat | *Site-specific protocols including questionnaires are developed and tested *interviewers understand the protocols and techniques to interview *Interviewers understand the purpose of program | *transportation and accomodation for Halim in Wakatobi for 10 days *photo copy, purchasing books, pens, etc. | AH | Andreas | 31 May 05 | | | | | | | | | | | | | | | | | | | | |
| 21 | d. Derawan | *Site-specific protocols including questionnaires are developed and tested *interviewers understand the protocols and techniques to interview *Interviewers understand the purpose of program | *transportation and accomodation for Halim in Wakatobi for 10 days *photo copy, purchasing books, pens, etc. | AH | Audrie & Handoko | 25-Apr-05 | | | | | | | | | | | | | | | | | | | | |
| 22 | 8 Actual interview at each site (in-depth and household | | | | | | | | | | | | | | | | | | | | | | | | | |
| | a. Komodo | *at least 600 individual | transportation and | Marthen | AH | 15-Jun-05 | | | | | | | | | | | | | | | | | | | | |

| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
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| 21 | | d. Derawan | *Site-specific protocols including questionnaires are developed and tested *interviewers understand the protocols and techniques to interview *Interviewers understand the purpose of program | *transportation and accomodation for Halim in Wakatobi for 10 days *photo copy, purchasing books, pens, etc. | AH | Audrie & Handoko | 25-Apr-05 | | | | | | | | | | | | | | | |
| 22 | 8 | Actual interview at each site (in-depth and household | | | | | | | | | | | | | | | | | | | | |
| 23 | | a. Komodo | *at least 600 individual repondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village | Marthen Malo | AH | 15-Jun-05 | | | | | | | | | | | | | | | |
| 24 | | b. Wakatobi | *at least 600 individual repondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village for interviewer | Veda | AH | 15 May 05 | | | | | | | | | | | | | | | |
| 25 | | c. Raja Ampat | *at least 600 individual repondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village for interviewer | Andreas | AH | 20-Jul-05 | | | | | | | | | | | | | | | |
| 26 | | d. Derawan | *at least 600 individual repondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village for interviewer | Audrie & Handoko | AH | 15-Jun-05 | | | | | | | | | | | | | | | |
| 27 | 10 | Progress report to NOAA | Report is available | none | AH | field coords | 30-Apr-05 | | | | | | | | | | | | | | | |
| | 11 | Develop final report | Report and paper are | none | AH | field coords | 30-Sep-05 | | | | | | | | | | | | | | | |

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| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
| 23 | a. Komodo | *at least 600 individual respondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village | Marthen Malo | AH | 15-Jun-05 | | | | | | | | | | | | | | |
| 24 | b. Wakatobi | *at least 600 individual respondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village for interviewer | Veda | AH | 15 May 05 | | | | | | | | | | | | | | |
| 25 | c. Raja Ampat | *at least 600 individual respondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village for interviewer | Andreas | AH | 20-Jul-05 | | | | | | | | | | | | | | |
| 26 | d. Derawan | *at least 600 individual respondents (males and females are interviewed *at least 300 households are interviewed *at least 12 to 18 individuals are interviewed for in-depth | transportation and accomodation in each selected village for interviewer | Audrie & Handoko | AH | 15-Jun-05 | | | | | | | | | | | | | | |
| 27 | 10 Progress report to NOAA | Report is available | none | AH | field coords | 30-Apr-05 | | | | | | | | | | | | | | |
| 28 | 11 Develop final report and paper | Report and paper are available | none | AH | field coords | 30-Sep-05 | | | | | | | | | | | | | | |
| 29 | 12 Presenting preliminary result at IMPAC 1 in Australia (not budgeted in this | Paper presented and distributed to audience | international travel & accomodation | AH | | 25 Oct 05 | | | | | | | | | | | | | | |
| 30 | 13 Comments on the report from JHU | Comments to improve final report are obtained | none | AH | | 30 Oct 05 | | | | | | | | | | | | | | |
| 31 | 14 Final report | Final report is available | none | AH | | 25 Nov 05 | | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | | | | | | |