

PARTICIPATORY RAPID APPRAISAL OF TSUNAMI AFFECTED VILLAGES

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THAILAND POST-TSUNAMI SUSTAINABLE COASTAL LIVELIHOODS PROGRAM

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1. Introduction

1.1 Project Background

The December 26, 2004 tsunami that struck throughout the Indian Ocean basin affected hundreds of thousands of people in countries throughout the region. The death toll was over 260,000 victims. Many that survived have had their livelihoods disrupted. Coastal tourism, fisheries, mariculture and agricultural sectors were seriously affected. Housing and public infrastructure were destroyed. The U.S. government responded to this disaster first through a massive relief and humanitarian assistance program. Secondary efforts are now focusing on medium and long-term rehabilitation programs.

In Thailand, The United States Agency for International Development (USAID) through the Regional Development Mission/Asia (RDM/A) is supporting a program (*Post-Tsunami Sustainable Coastal Livelihoods Program*) designed to enhance the capability of local government to coordinate and plan strategic rehabilitation efforts in coastal areas. This 36-month, US \$2 million effort is implemented by the Asian Institute of Technology, University of Rhode Island, and University of Hawaii in cooperation with the TAO (Tambon Administrative Office) and other supporting government and non-government partners. The goal of the program is to demonstrate how participatory, issue-driven and results-oriented processes can be applied to restart livelihoods and rehabilitate coastal communities affected by the tsunami in several coastal villages along the coast of the Andaman Sea. The program is designed in response to the priority needs for international assistance requested by Royal Thai Government through several task forces formed by the cabinet immediately following the disaster.

The tsunami affected hundreds fishing villages along the Andaman coast. It destroyed the livelihood of an estimated 30,000 households who were dependant on fisheries and it destroyed or seriously damaged over 4,500 fishing boats. In Thailand, the hardest hit were over 200 coastal villages in the provinces of Phang Nga, Phuket and Krabi Provinces. Over 4,000 persons died in Thailand including foreign tourists, local Thai residents and undocumented foreign workers. The tsunami seriously impacted the natural environment as well. It severely damaged many marine and national parks, destroyed coral reefs and damaged agricultural lands through salt-water intrusion. These impacts will have serious long-term consequences for tourism and fisheries and will affect the livelihoods of many thousands of people in the country.

Thailand and the donor community have responded quickly to this disaster. Initially, affected areas are being cleared of debris and people provided with temporary shelters, food and other basic necessities. Already, some infrastructure has been rebuilt, permanent housing provided too many who lost their homes, and some cash compensation provided to fishers who lost boats. Medium to long-term rehabilitation plans are now being formulated at the national and local levels.

Comment [SP1]:

Prior to the disaster, development along the affected coasts has evolved primarily through an unplanned process that produced many “development mistakes”. Houses and infrastructure were built very close to the shoreline with no consideration of building standards or setbacks. Many communities were built on exposed coasts without the benefits of natural features such as dunes, reefs or sandbars to protect them from coastal hazards. Sewage and other wastewaters were and continue to be discharged into the sea

without treatment – frequently close to fish mariculture and tourism sites. As the abundance of fish and shellfish has declined in the face of the dual threats of overfishing and habitat destruction, many fishers resorted to unsustainable fishing practices such as nearshore trawling, and the use of fine mesh push nets. These issues have not been swept away by the tsunami and are part of the context under which rehabilitation and redevelopment needs to take place.

Although the current situation is tragic, it also provides a unique opportunity to do things better. Reconstructed communities can be made more environmentally and economically sustainable. Developing an example of good planning that promotes environmentally sound livelihoods and minimizes future damage from natural disasters, can inspire similar action elsewhere in the country and region where rehabilitation and reconstruction will be underway for the next several years.

The amount of damage in the 200 coastal villages affected by the tsunami varies widely. In heavily affected communities, all structures have been destroyed. In other villages, where some infrastructure withstood the force of the tsunami, damages are less severe. In a few communities, damage is minimal. In some instances, impacts of the tsunami have been felt as far as one-kilometer inland. Estimates calculate the wave height in some areas at as high as 10 meters. The economies of the communities are diverse, with varying amounts of tourism, fisheries, aquaculture and farming. Communities with strong tourism economies appear to be recovering most quickly while those that were more dependent on fishing and farming are recovering more slowly. There are reports that some compensation, for instance for lost fishing boats and gear, is not necessarily being used to re-capitalize fishing, but is instead being used for more immediate needs such as housing and food. The needs are enormous and include livelihood establishment, infrastructure and housing rehabilitation and development, habitat restoration and hazard mitigation. Equally important is the need to enhance the capacity of national and local government institutions to plan and implement coastal rehabilitation and reconstruction efforts in a manner that promotes more sustainable forms of coastal development.

The *Post-Tsunami Sustainable Coastal Livelihoods Program* has been designed to address many of the above mentioned short and medium term issues for reconstruction and redevelopment. It is implementing a demonstration rehabilitation effort in five villages - Tale Nok, Tub Nua, Kam Phuan, Phukhao Thong and Hard Sai Khao - along the Andaman Sea coast in the Suk Samran District of Ranong Province. The affected villages are within Laem Son National Park. They are small, rural, predominantly fisheries and agriculture dependent communities, consisting of approximately 731 households and 4560 people.¹ They were moderately or severely impacted by the tsunami and suffered from the death of over 160 of their residents, the loss of over 200 fishing boats, engines and gear as well as scores of homes destroyed or damaged. In the aftermath, and because they are among the poorest coastal communities in Thailand, these communities have expressed a strong interest and a potential for livelihood diversification and improved resource management. Therefore, these villages will serve as a demonstration of sustainable and diversified coastal livelihoods for other communities and nations in the region.

The specific objectives of the Program are to:

¹ 2004 census data for the five affected villages.

- Establish a set of principles & coordinated approach to rehabilitation
- Re-start livelihoods, especially those that rely on healthy coastal resources
- Redesign of damaged coastal infrastructure
- Build capacity for planning and decision-making in the coastal zone
- Promote learning and share experience in Thailand and the region

The intended beneficiaries of the program are individuals, households and communities affected by the tsunami. Specific activities will be determined through a participatory planning process with communities and the TAO based on priority needs identified by the communities themselves. Activities are organized into four program components:

Facilitate Consensus and Create a Unified Vision for Action: This will involve implementation of participatory assessments of the impacts of the affected communities, and identification of problems and priority issues by the communities. The program will facilitate a process whereby the community and local government can develop criteria for selecting priority beneficiaries, and what the community vision is for immediate rehabilitation and future medium-term development.

Restart and Develop Sustainable Livelihoods: The program will help restart livelihoods that were disrupted by the tsunami. Special attention will be given to fisher households, but other livelihoods affected can also be assisted. Assistance will be in the form of replacement of boats (with ARC) and provision of revolving funds for gear, engines, or restarting other types of small-scale businesses in aquaculture, tourism or others. The project also has funds for “cash for work” and will implement training in business development.

Site, Design and Construct Coastal Public Infrastructure: The program will assist the TAO in siting, design and construction (co-financing) of a selected number of public infrastructure projects. Priority will be given to small scale projects and infrastructure damaged or destroyed from the tsunami. This could include demonstration structures (homes or public buildings) that incorporate tsunami resistant construction standards, or evacuation routes or bridges.

Enhance Management Capacity: The program will build capacity of communities to develop sustainable livelihoods through training in business management and entrepreneurship. It will also train communities and local government in participatory planning, fisheries management, hazard mitigation, and development of early warning systems and evacuation planning.

A program office has been established at the Kam Phuan TAO Office. Two field coordinators are stationed full-time in this office to manage program activities.

1.2 Purpose of the PRA

One of the first activities implemented by the program as part of the first program element (*Facilitate Consensus and Create a Unified Vision for Action*) was to conduct a Participatory Rapid Appraisal (PRA) of affected communities, which is the basis of this report. The objectives of the PRA were to:

1. Orient the community about the project
2. Understand the current community context concerning tsunami impacts and rehabilitation progress to date
3. Identify key problems and priority needs for each community
4. Start to establish a common vision for short term rehabilitation and long term development of coastal resources

Originally, four coastal villages that were directly impacted by the tsunami were targeted for PRA activities. However, the TAO Chairman and field coordinators indicated that many individuals who had houses destroyed by the tsunami in village # 2 (Tub Nua) had moved into village #3 (Kam Phuan). Therefore, it was decided that this fifth inland village would be added to the PRA process since tsunami affected households now resided in this village. Our intent is to ensure that all the affected households and communities in the district are included in program activities.

The PRA carried out in these villages differed significantly from standard PRA methods. Typically, PRA is used as an initial process in community-level rural development programs. There is a significant body of literature on PRA processes and methods as it applies to rural development planning (Chambers, 2002). It has been adapted for community-based coastal resources management planning as well (Walters et al. 1998). While the basic PRA methods used were the same, the type of information gathered emphasized tsunami impacts on the communities, as well as problems and needs associated with rehabilitation. This included an emphasis on the key program elements and objectives of restarting tsunami-affected livelihoods and rehabilitating damaged or destroyed coastal infrastructure. The geographic setting along the coast also resulted in a PRA emphasis on understanding existing coastal resource uses and occupations, and opportunities related to diversified livelihoods in this setting. Lastly, since this program is not a standard coastal management planning and implementation initiative, an element of speed and timing came into play. This program is a response to what is probably the world's greatest natural disaster in a coastal region that will be seen in our lifetime. Hence a rapid response was warranted to help identify community priorities for quick implementation in the short-term as well as set the stage for more medium-term and larger scale rehabilitation efforts. Therefore, this was the priority initial program activity implemented even before office facilities had been established, and within two weeks of full-time staff being positioned in the field site.

A short time period was allocated to this activity - approximately two weeks for planning, training and implementation of the PRA process, including a time allocation of two days per village for fieldwork. Therefore, we took many short cuts from what would be expected in a more relaxed and less time-constrained context for a PRA.

While an immediate priority of the PRA process was to obtain critical information needed to move towards quick early rehabilitation actions, equally important is the process itself. TAO leaders have expressed their desire and commitment to use this program as an opportunity to learn and develop skills in participatory development processes. Initial interviews with local government and community residents have indicated that early rehabilitation efforts of donors and government are not well coordinated and there is often confusion and lack of understanding among the stakeholders about the process and criteria used to determine who receives disaster assistance. Issues concerning transparency in these processes have also been raised. In addition, there already has been

a substantial amount of disaster assistance provided in this district. Unfortunately, as donors have been working more or less independently, there are hints for instance that some communities may have received more compensation or had more boats replaced than were actually lost from the tsunami. While this disaster assistance is well intended and may help individuals in the short term, it could ultimately result in more unsustainable overfishing and reduced incomes of fishers in the long term. In addition, while there have been many previous assessments made along the affected coastline and bits and pieces of information concerning assistance already compiled, the information is not consolidated in any one location or easily available for review. Therefore the PRA work was designed with these issues in mind:

- To ensure a participatory community process with the affected communities and households;
- Engage all donors and government agencies involved in active listening as to what the communities themselves identified as priority needs and beneficiaries in order to provide a coordinated assistance package, and;
- To the extent possible, consolidate all available existing information pertaining to tsunami impacts and assistance already provided.

The process had several aims – building local capacity while helping the program determine how to channel relief funds to affected villages. We intentionally started this process to empower local communities and ensure substantial local government engagement from the beginning – so they could become more proactive rather than reactive to donors as well as move towards a more comprehensive rehabilitation strategy rather than a project or donor specific approach.

We view this PRA as the start of a longer process of community and local government engagement, and one that is being supplemented with other rapid assessments undertaken in parallel with initial early actions for restarting livelihoods and rehabilitating infrastructure. These other assessments are expected to fill in many of the gaps in information that we were unable to obtain during this first PRA process, to help verify information gathered as well as provide a more in-depth look at technical, socio-economic and environmental issues identified by the PRA. Specifically, information gathered in this PRA is being used by another team tasked with follow-up and that started immediately after these PRA activities were completed. They are conducting rapid socio-economic appraisals and suitability analysis of proposed project activities in each village. Since there are a number of small-scale infrastructure projects proposed, another team will conduct environmental screening of all proposed activities identified in the PRA and prepare an Initial Environmental Examination (IEE) as required by USAID environmental procedures detailed under CFR 216. However, the program strategy is designed to ensure that small-scale and simple rehabilitation activities can get underway immediately following this PRA given the emergency nature of this program. However, the larger-scale and more complex infrastructure projects as well as new and diversified livelihood opportunities will need to be more fully assessed to ensure a high probability of success without significant adverse environmental impacts. Given the three-year time frame of this project, this parallel track of rapid emergency response coupled with more detailed and careful medium term sustainable development and rehabilitation is appropriate.

1.3 General Description of PRA Activities Undertaken

The PRA activities were divided into several phases:

- Planning and preparation
- Training
- Implementation
- Community validation and sharing of results

The two primary consultants for this process (see Appendix 1 for Terms of Reference), Dr Soparth Pongquan from AIT and Brian Crawford from CRC/URI, worked jointly via email and prior to arrival at the field site on developing the PRA design and preparing materials for the process. This activity, including planning of site logistics, was coordinated with the two field coordinators assigned on-site.

One of the more important activities undertaken as part of the preparation process was the selection of Community Volunteer Facilitators (CVFs). The role of CVFs in the program is more than just to help conduct the PRA activities. CVFs are seen as an important conduit to the community, both to provide information about the program to the community as well as to provide information about the communities to program staff. They also will play important roles in organizing community meetings and events associated with the program and coordinate village level activities with village government representatives, including the village headman and the TAO elected representatives. They are not seen as a replacement or competing power structure with the traditional governance structures in the community – but additional human resources to support and mobilize planning, decision making and implementation activities. We expect that the CVFs will work with us for the duration of the program. These individuals were selected by the community with the understanding that these are volunteer positions and are not salaried full-time community workers. The level of effort expected from them will vary with a heavy commitment in the early phase of the program and a more intermittent involvement in the latter phases.

CVFs were selected from each tsunami-affected village in the week prior to conducting the PRA. Villages were asked to nominate several candidates who would be willing to serve as community volunteers. Criteria included:

- Willingness to devote some time each week to assisting the program, basic literacy (reading and writing skills);
- A resident of the village but not necessarily from a tsunami-affected household;
- Endorsement by the community and its leaders, and;
- Ability to work with us almost immediately on the PRA activities.

Each village then elected two volunteers at community meetings, one male and one female so that there was gender balance in this team. Most of the CVFs have secondary level education or higher and most are in their mid-twenties to thirties in age (see Appendix 2).

A two-day orientation and training event was organized for the CVFs that was implemented by the PRA consultants and the Field Coordinators. The initial objectives of this event were for the participants to be able to:

1. Describe of the project goals, principles and activities
2. Discuss basic concepts and principles for coastal management planning and implementation
3. Explain appropriate roles of community development workers and concepts of participatory planning
4. Prepare to implement several PRA tools in the target communities applied specifically to tsunami rehabilitation activities
5. Have a plan of action for conducting the PRA exercises in 5 villages over the following days

Due to time constraints, were not able to incorporate basic concepts and principles of coastal management into the actual implementation of the training as we placed priority of preparing for the PRA activities that were to occur immediately following the orientation/training event. While we initially wanted to have TAO representatives involved in this event, this was not possible due to the weekend timing of the event and the short notice given before it was started. However, TAO officials were briefed on the PRA activities and participated in the activities conducted in each village. In particular, the village headman and TAO elected representatives introduced the PRA activities on the first day and assisted with some of the group facilitation activities along with the CVFs, field coordinators and consultants.

The orientation/training event was followed immediately by implementation of the field PRA activities. Two days were allocated to each village with the entire team involved in the implementation of activities in the first village (Village # 4, Phukhao Thong). Brian Crawford observed the PRA activities in the first village, answered questions concerning the project that arose, provided comments on outputs, and made a few closing remarks at the end of the process. Subsequently, we planned to have the team split into two teams and conduct simultaneous PRAs in two villages at a time, with two villages allocated to each of these events. The entire team met back at the TAO office for a debriefing at the end of each day and for re-planning and organizing the following days events, a process facilitated by Dr. Soparth. This was extremely useful as CVFs and the entire team was able to reflect on the days activities and plan better and more efficient ways to implement the PRA activities in subsequent days.

After the first experience in village 4, it was agreed that community representatives before the PRA meeting should prepare a community and fishery map that would be checked and validated in the meeting to save time. A simultaneous PRA was conducted in two villages (Village 2: Ban Thap Nua and Village 7: Hard Sai Khao) by splitting the CVFs and Field Facilitators into two groups equally. The goal of doing two villages at a time was to save time and completes all the PRAs more quickly. Due to lesser numbers of CVFs and lack of experience, the facilitators faced some difficulty and confusion however, thus, some data was not generated in the required format. Afterwards, the PRA supervisor (Dr. Soparth) and facilitators had to spend time filling in the data gaps and returning to the villages to collect additional information. After a meeting to review the data of these two villages, it was agreed that we should conduct only one PRA meeting per village, using the full team as was done in the first village, with the only difference being preparation in advance of the community and fishery maps. After three villages were completed, the CVFs became more skillful and were able to complete the two villages within one day each with adequate preparation in advance.

The team then met after completion of all villages to prepare presentations for the PRA validation meeting of representative from five villages. Based on suggestions of village leaders, TAO members and the CVFs, the presentation in the validation meeting emphasized a synthesis of consolidated PRA outputs of all villages. These reports stressed the tsunami impact on the community, natural resources and environment (based on the community and fishery maps), seasonal calendar, perceptions of people on criteria to identify targeted beneficiaries, problems and needs of various occupational groups (fishery, agriculture, women, traders and wage labors), and community problems and needs. Approximately 100 people attended in this validation meeting held at the village community hall of Village #3. Time was provided at the beginning of the meeting to allow participants to walk around the hall, read the PRA outputs, and exchange their ideas. The CVFs made the presentations in this meeting and invited feedback, comments and suggestions from the audience. Certain PRA outputs were revised and incorporated additional needs into the final outputs based on participant feedback. Some of the participants who attended this meeting did not participate in the previous meeting held in their respective village. The findings of other villages were discussed among all participants so that all impacted villages could see the overall picture of needs for all tsunami-affected communities within the Tambon.

The last meeting was attended by 25 participants and was held at the TAO office to present the PRA consolidated outputs to the TAO members, government officials from provincial and district levels and NGOs that have been working in the Tambon. In addition to the presentation of PRA outputs, all NGOs delegates briefed participants in on their work regarding assistance provided for reconstruction and rehabilitation in Kham Puan and neighboring areas. The NGOs and government agency participants appreciated the comprehensive PRA outputs presented which were greatly beneficial to their work in implementation of rehabilitation projects in this area and for coordinating assistance among the various donors.

References Cited

- Chambers, R. 2002. *Relaxed and Participatory Appraisal: Notes on Practical Approach and Methods for Participatory in PRA/PLA*, Institute of Development Studies, Sussex, United Kingdom.
- Walters, J.S., J. Maragos, S. Siar and A.T. White. 1998. *Participatory Coastal Resource Assessment: A Handbook for Community Workers and Coastal Resource Managers*. USAID Coastal Resources Management Project/Philippines, Cebu City and Silliman University, Center of Excellence in Coastal Resources Management, Dumaguette City, Philippines. p. 102.

Methodology

Participatory Rural Appraisal (PRA) is a methodology used by many rural development programs to characterize local community conditions and assess problems as a first step towards participatory community development planning. A key feature of the methodology is the involvement of the community themselves in this process. Typically, an interdisciplinary team facilitates a host of activities with local residents to look at various facets of a community setting.

We carried out a PRA process in five villages of Suk Samran District that were affected by the December 26, 2004 tsunami during the period of May 20 - 30, 2005 (see Appendix 3 for the schedule of activities). As explained in the introduction, this was a modified PRA process tailored as a response to the tsunami tragedy. It was undertaken in a very rapid and time constrained setting. The priority information we wanted to collect (see Table 1A below) was adapted to understanding the impacts of the tsunami, and identification of rehabilitation priorities as viewed by the communities themselves. After completion of a short two-day orientation and training program for community volunteer facilitators (Appendix 4), we designed a two-day PRA process (see Appendix 5) that was carried out in each of the five villages. The PRA team consisted of one Thai consultant from the Asian Institute of Technology, one foreign consultant from the Coastal Resources Center at the University of Rhode Island, two Field Coordinators assigned on-site, and ten Community Volunteer Facilitators (CVFs). CVFs consisted of one male and one female from each of the five villages. A fact sheet on the program was also produced for distribution in the villages during the PRA activities (Appendix 6).

The methods used in the PRA process for each village included the following:

- Review of existing secondary data
- Community mapping including land and sea areas
- Focus groups with selected stakeholder groups (women's group, fisher group, farmer group, trader and wage laborers)
- Large group meeting

We did not include a community transect, nor did we include key informant interviews as part of this process which are methodologies used in typical PRAs. This was primarily due to time constraints and the primary goal of identifying priority needs and early actions that could be undertaken by the project - therefore the emphasis on group activities.

The first village PRA included the entire PRA team. For the subsequent PRAs, the team was split into two groups and the PRA carried out in two villages simultaneously. There were 259 persons who participated in the PRA exercises at the village level, of which approximately 45 percent were women (see Table 1B). After completion of the village PRA exercises, a one-day meeting was held to feed back and validate the PRA results with community representatives. Over 100 persons from the five villages attended this meeting. This was followed by a one-day presentation of the summary PRA results for all villages to TAO officials, district and provincial officials, as well as donor and NGO groups working in Tambon Kam Phuan. After completion of these activities, the PRA results and findings were provided to a second team conducting follow-up and more detailed socio-economic appraisals in the same villages.

Table 1A: Information Needs for the PRA Activities

Village Mapping: Before and After Tsunami

- Identify key natural resources of the area including physical condition and landscape, hilly and seashore areas, mangrove forest, shoreline, national park area,
- Locate settlements (distribution of houses), infrastructure (road network, water resources) and public services and utilities (temple/mosque, school, health center/hospital, shops, market places, government offices and other)
- Land use for agriculture (crops, aquaculture and fisheries), forest and tourism
- All above, identify areas of damages before and after tsunami
- Identify swash line for tsunami or other natural disaster.
- Identify (possible) areas for housing and infrastructure reconstruction (on-going, completed)
- Mapping of oceanographic features, marine resources, fishing zones, national park boundary, etc.

Village Situation Assessment

General situation

- Number of deaths classified by gender and age and
- Number of injured persons
- Number of widowers, orphans and handicapped
- Number of persons of each household who had a mental problem as a consequence of tsunami
- Number of damaged houses (fully and partly)
- Fishery assets by household (type, size and number of boats, gears, engines and other equipment) (before tsunami) and number of losses of those (after tsunami).
- Land tenure: old settlement vs. new settlement

Livelihoods

- Primary livelihoods of residents (major occupation - fishers, farmers, workers, migrants and other?)
- How many occupational groups and members of each group?
- Type of community-based groups (fishing, mangrove forest, tourism and environmental conservation and other), members and organizational support.
- Gender roles in the community (men and women)
- Changes/Impact as a consequence of tsunami in terms of occupation, assets (land, house and fishing boat and equipment), role of gender and migration both in and out)

Assistance/Support Received

- Types of compensation received by each household for death, injured, house damage (fully/partly) and fishing assets/equipment and identify from which agency/agencies?
- Type of other assistance (i.e., housing construction), unemployment compensation
- Identify resources for livelihood recoveries have been received and what else are not yet obtained? (i.e., compensations, fishing boats, gears and equipment and credit for restarting occupation)
- Identify and prioritize types of resources and support that are most needed by the household
- What donors and/or NGOs in the village are doing? Any assistance received from them and what?

Community Calendar

- Within a calendar year, fix activities of community like the highest and lowest peak(s) of fishing period, seasonal fishing calendar by gear and by species, major crops' calendar, main activities of key occupational and women's groups, religious and major social activities.
- Identify an off-season period for agriculture and fishing.

Identification of the Priority Beneficiaries

- What are the criteria to identify the tsunami affected individuals and households – the disadvantaged groups in communities as perceived by community?
 - Based on those criteria, prioritize which groups should receive priority assistance (among those who have got an impact)?
-

Table 1 (continued)

Problems and Needs

- Community level (infrastructure, public utilities, social service, natural resource and environment)
- Household level (livelihood aspects focusing on housing and occupation and capital investment including credit)
- De-aggregate groups focusing on fishermen and women
- Prioritize the identified problems and needs of each category mentioned above. After the prioritization, a discussion should be held of each respective group (fishermen and women). On the community level, representatives of those groups should be involved together with local leaders.

Vision on Future Development (Focus Group Discussion)

- Discuss with community (representatives from several groups) on their vision related to community rehabilitation and reconstruction (infrastructure, mangrove, beach, buffer zone, housing and building preference in terms of location fitting with their livelihood and construction rules and regulations to meet the disaster protection standard).
 - Discuss with de-aggregate groups of their future plans to sustain their livelihood and support needed.
 - For both above, outline local resources that could be mobilized internally (village and Tambon) to secure their livelihood. Figure out type of external support and sources.
 - Propose and prioritize recommendations villagers prefer to recover or rehabilitate their community and livelihood for short and medium terms.
-

Table 1B: Participants in the PRA Exercises

Village	Male	Female	Total
1	19	15	34
2	23	12	35
3	43	38	81
4	23	25	48
7	35	26	61
Total	143	116	259

3. PRA Outputs

3.1 Secondary Data Review

Field Coordinators compiled secondary data prior to the arrival of the PRA consultants. Most of this information was obtained either from Suk Samran District or from the TAO. Information from the Provincial Offices had not yet been gathered at the time of the PRA work. However, we do know that the Department of Fisheries has information concerning compensation provided to fishers and aquaculture operators. This will be important to obtain at a later date, especially in support of the boat replacement activities and development of aquaculture livelihoods.

As each PRA was carried out at the village level, additional secondary data and documents concerning tsunami impacts and compensation was provided by village officials. Much of the information provided is in various forms and varying details. It includes information on fatalities and injuries, list of orphans, property damage and losses including houses damaged inventories of lost fishing boats and associated equipment, as well as lists of various types of compensation that has been provided by donor groups. We were unable to compile all this information into summary form due to time limitations. However, this will be an important follow-up task to ensure that compensation is provided equitably among tsunami affected residents.

The secondary information reviewed prior to and during the PRA is listed in Table 2 below. Population census data collected in 2004 before the tsunami struck and the year following (2005) are provided in Tables 3-4. Review of census data shows the population size of the villages and number of households to be much higher than information previously obtained and contained in the program statement;

“These small communities, consisting of a total of approximately 315 households and 1260 people, were moderately or severely impacted by the tsunami”

Census data shows population of the 7 villages as 5331 persons in 2004 and 5263 persons in 2005 with 853 and 865 households respectively. The TAO strategic plan provides data for 2003 of 5,136 people in 1150 households. Census data does not show accurately the impact of tsunami in terms of the death toll. These data show a population decrease in tsunami affected villages of 74 persons but we know from interviews of TAO officials that 160 persons died. Census data suggest more female fatalities than male. This is likely due to the fact that census data shows net population changes, accounting not only for deaths but also births and in and out migration. It should also be noted that village #3 split into two villages (# 3 and #7) in Sept 2004. Some older census data show only six villages in Tambon Kam Phuan.

A complete listing of deaths by village and the number of houses destroyed or damaged by village was compiled in Table 5.

Table 2: List of Secondary Information Compiled

No.	Document	Source
1.	Tambon Kam Phuan 3 Year Development Plan	TAO Kam Phuan
2.	Tambon Kam Phuan Strategic Plan	TAO Kam Phuan
3.	Tsunami Aid Provided	TAO Kam Phuan
4.	Census of village no. 1 (Ban Talae Nok)	Village headman No. 1
5.	Population Census Data 2004	District registrar office
6.	Population Census Data 2005	District registrar office
7.	List of Tsunami victim Ban Tale Nok (v. 1)	District registrar office
8.	List of Tsunami victim Ban Tub Nua (v. 2)	District registrar office
9.	List of Tsunami victim Ban Hat Sai Khao(v. 7)	District registrar office
10.	Map of Laem Son National Park	Laem Son National Park
11.	List of Village Groups	TAO meeting on May 2, 05
12.	List of Boats Distributed by German Aid in Village 4	Village #4 Officials
13.	List of Fishing Boats and gear Losses in Village #4	Village #4 Officials
14.	List of Infrastructure Projects Proposed by TAO	TAO Kam Phuan
15.	List of Proposed Projects for the CHARM Project	TAO Kam Phuan
16.	List of Projects Completed, On-going and Proposed by North Andaman Relief (an NGO)	North Andaman Relief

Table 3: 2004-2005 Census Data for Suk Samran District, Kam Phuan Tambon

Village No.	Tsunami Affected	2004	2004	2004	2004	2005	2005	2005	2005
		Male	Female	Total	House holds	Male	Female	Total	House holds
1	y	141	119	260	27	126	102	228	29
2	y	699	673	1372	226	688	652	1340	227
3	y	645	591	1236	197	632	581	1213	197
4	y	596	581	1177	185	602	590	1192	190
5	n	291	245	536	87	296	244	540	87
6	n	119	116	235	35	118	119	237	35
7	y	267	248	515	96	269	244	513	100
Total All Villages		2758	2573	5331	853	2731	2532	5263	865
Tsunami affected		2348	2212	4560	731	2317	2169	4486	743
Non affected		410	361	771	122	414	363	777	122

SOURCE: Census Data, Suk Samran District

Table 4: Population Change in Suk Samran District, Tambon Kam Phuan

Village No.	Tsunami Affected	Female Change	Male Change	Household Change	Total Change	Female % Change	Male % Change	Household % Change	Total Pop % Change
1	y	-17	-15	2	-32	-0.14	-0.11	0.07	-0.12
2	y	-21	-11	1	-32	-0.03	-0.02	0.00	-0.02
3	y	-10	-13	0	-23	-0.02	-0.02	0.00	-0.02
4	y	9	6	5	15	0.02	0.01	0.03	0.01
5	n	-1	5	0	4	0.00	0.02	0.00	0.01
6	n	3	-1	0	2	0.03	-0.01	0.00	0.01
7	y	-4	2	4	-2	-0.02	0.01	0.04	0.00
Total All Villages		-41	-27	12	-68	-0.02	-0.01	0.01	-0.01
Tsunami affected		-43	-31	12	-74	-0.02	-0.01	0.02	-0.02
Non affected		2	4	0	6	0.01	0.01	0.00	0.01

SOURCE: Census Data, Suk Samran District

Table 5: Tsunami Impacts - Fatalities and Houses, Tambon Kam Phuan, Suk Samran District

Village No.	Tsunami Affected	Households/w Death	Deaths						Total Persons	Houses	
			Adults			Children				Destroyed	Damaged
			Male	Female	Total	Boy	Girl	Total			
1	y	25	8	14	22	7	8	15	37	29	3
2	Y	25	11	18	29	8	15	23	52	69	0
3	Y	14	5	5	10	6	1	7	17	0	0
4	Y	9	5	3	8	0	2	2	10	0	8
7	Y	9	6	3	9	8	1	9	18	58	8
Total All Villages		82	35	43	78	29	27	56	134	156	19

SOURCE: TAO and Village Reports, PRA Outputs, Key Informants

The Tambon Kam Phuan Development Plan and Strategic Plan were reviewed (see Appendix 7 for an English summary). The Tambon has laid out a vision and mission for development as well as identified existing problems, needs and development strategies. Since these documents were developed in 2003, they do not take into account the dramatic effect of the tsunami on this Tambon. In discussions with the TAO Chair, he indicated that rolling plans are prepared annually that update these development plans. They are supposed to take into account changes that may arise due to new circumstances. The TAO is required to start this “rolling plan” development shortly. We recommend that the Program work with them to prepare a more comprehensive short-term (1-year) and medium-term (3-year) tsunami rehabilitation and reconstruction plan that fits into the rolling plan and as a supplement to the 3-year development plans. These plans should include a comprehensive review and summary of what compensation and rehabilitation has already been provided and what commitments various donors have made during this period. This may help the Tambon move into a more proactive and comprehensive approach to tsunami recovery and is a useful means to coordinate and integrate local and external assistance provided. In this way, a Tambon –level tsunami rehabilitation and reconstruction plan at our site could serve as a useful model for other Tambon administrations as well as local governments in other countries faced with similar challenges.

The TAO has already submitted a list of proposed infrastructure projects to the Ministry of Interior (MOI) for funding (see Appendix 8). These proposed projects include road reconstruction, canal dredging, mangrove footpaths, erosion control structures as well as water supply and treatment structures. If our program will support any of these proposed projects, either for design or co-finance construction, then these will need to be included in the IEE to be developed.

At the same time that we started our PRA activities, the community development officer from the District Administration was holding meetings with the TAO to compile a list of proposed livelihood projects (see Appendix 9) which was provided to us about half way through our PRA activities. Most of these activities involve sea farming projects, seafood processing, and fishing vessel and gear procurement. However, the CHARM (EU funded Coastal Habitats and Resources Management) Project can only fund a small amount of the total number of projects proposed. It should be noted that the proposed infrastructure and livelihood projects mentioned above, unsurprisingly, are very similar to the village level proposed activities compiled from our PRA process.

3.2 PRA Outputs by Village

The specific results of the PRA activities carried out in each village are provided below. An example of the type of detailed outputs produced by each village is provided in Appendix 10.

VILLAGE 1: BAN TALAE NOK

Nearly 40 villagers participated in the PRA meetings held at a temporary community hall. Details of PRA findings of this village are contained in Appendix 10.

Background

There are 40 households in this village with a total population of 229 persons. Concerning the livelihoods of village people, approximately 60% of households are engaged solely in fishing, 34% in fishing and agriculture, 5% on wage labor and 1% on trading. The village area is largely contained within Lam Son National Park and has a beach named Talae Nok that is well-known for tourism. There are a number of unregistered households in the area with semi-permanent residents. There are several informal groups or associations in this village. One is for fish cage culture with 15 members; and the other one is a goat raising group with 7 members. There is also an eco-tourism group that has been operating for two years in collaboration with the World Wildlife Fund.

Impact of the Tsunami on the Community and Livelihoods

The impact of the tsunami based on a map of the village prepared by the community was primarily on severely damaged houses located about 100 – 150 meters from the shoreline. The wave also wiped out a primary school, Ban Talae Nok school, where many children have died in this tragedy. Some agricultural lands were also damaged due to sea water intrusion causing soil salinity affecting soil fertility of agricultural land for horticulture (mangosteen, "longkong" and rambutan). The damage to livestock (cattle, goat and poultry) was not significant as not many households are engaged in animal husbandry. The community is connected to many islands near the coast that are famous for healthy coral reefs and marine resources, rich fishery and tourist attractions. Those islands are Kham Yai, Khang Khaeo and Kham Tok or Auao Khao Kwai. Reportedly, the tsunami caused severe destruction to marine resources including damage to natural and artificial coral reefs around these islands. The shape of the Kham Tok Island has changed significantly. In addition, sea debris was still plentiful in the ocean, which tears fish gears of fishermen. In addition, mangroves and cashew nut trees in the village were largely destroyed by the tsunami.

The majority of the population of the village is fishermen and almost all of them were impacted by the tsunami, losing their boats, vessels, fishing gear and other equipment. Impacts on farmers have been primarily damaged coastal agricultural land as they are no longer fertile due to soil salinity particularly for fruit plantations of various kinds. Traders and wage laborers make up a small fraction of the occupations in the village. Traders lost their shops and groceries and wage laborers also lost jobs, as less work is now available, particularly in the fishery and agricultural sectors. This has an impact on women as well who were primarily housewives of the fishermen. Most women do not have any main occupation.

Seasonal Employment

Based on a seasonal calendar of this village (Appendix 10), fishermen are engaged in catching of shrimp and fish from April to December; crab and other fishing as well as green mussel culture from January to December, and fishing for “spotted featherback” from November to April. Fishermen have most free time during the January to March period. Concerning horticulture, farmers have fruit plantations of longkong, rambutan, durian and palm trees throughout the year from January to December. For mangosteen, harvests are from May-June; cashew nut from February to April; stink bean from March to May and rubber from December to April. For livestock raising of cattle, buffalo, goat and poultry, farmers are engaged in these activities throughout the year.

Assistance Provided after the Tsunami

Government, NGOs, private sector groups and individuals have all provided much support to affected households and this community as follows:

Housing

- Royal Air Force, MOD and Police Border constructed 20 permanent houses within a total of 2 rai of land.

Infrastructure and Education

- Chulalongkorn University, Bangkok built a community meeting hall at a total budget of 200,000 Baht.
- Technical School from Singhburi Province built a temporary primary school
- Northern Andaman Relief organized English teaching to school children and provided toys and playground equipment to school children.

Fishery

- Department of Fishery, MOAC provided compensation for fishing boats and vessels

Department of Local Administration, MOI provided fishing gear and equipment.

- ADRA donated 3 fishing boats
- Hard Thip Co. Ltd. donated 19 fishing boats; renovated a community kitchen and funded herbal soap making. The total cash contribution was 150,000 Baht.
- Individuals donated 20 fishing boats.
- Coastal Fishery Center supported 100,000 Baht on crab trap making to be used among fishermen.

Other Occupations

- Northern Andaman Relief Group set up a furniture making group with 15 members and provided training to them who are mostly fishermen. Funding support was 40,000 Baht.
- Department of Labor, Ministry of Labor set up three occupational groups for women. First is the herbal soap making group with 20 members of 20. A three-day training was provided in March 2005 with the total cash support of 80,000 Baht to the group. Second is the bakery-making group comprising of 22 members. Ten-day training was provided in the same period and with financial support of a total

of 80,000 Baht. Third is the cashew nut processing group with 15 members. Equipment was provided and 20,000 Baht as initial capital for the group.

Criteria for Selection of Target Beneficiaries

Five major criteria were listed in the meeting. These are affected households who:

- completely lost housing,
- loss of boat and engine,
- death of household head,
- vulnerable groups (widowers, orphans, handicapped, elderly and migrants) and
- others who were affected indirectly.

Problems, Needs and Visions of Occupational Groups

Fishery Group: The major problems expressed by this group of fishermen as highest priority were lack of capital for supplementary occupations, lack of hatcheries for fish culture and green mussels, high cost of gasoline, lack of drinking water and poor domestic water supply, several restrictions for the small-scale fishery in the national park area; lack of an early warning system, no signal for cell phones. Other problems in sequential order from the highest to the lowest rank were a small village pier, shallow creeks and channels, lack of radio communications for the fishery, no life jackets in fishing boats, inadequate boat and ship docks, lack of buoys to mark safe areas for boats, decrease of aquatic animals, intrusion of commercial fishers into areas for the small-scale fishery, and high cost of fishing equipment. Several needs of the group were identified with the highest first priority being capital to continue their main occupation of fishing and to support supplementary occupation, dredging and widening of canals and creeks, hatcheries for fish and green mussel culture, radio communication for the fishery, household water containers and obtaining cell phone signal coverage for communication. The lowest priority was a permanent village pier. The vision of this group is to decrease the substantial amount of debt of fishermen and the safe and effective navigation of fishing boats and ships.

Agricultural Group (Horticulture and Livestock): Main problems ranked highest by this group included lack of land title, lack of agricultural land, no seedlings of fruit trees and lack of capital. The other prioritized problems from the highest to the lowest were lack of water for drinking and agriculture, no supplementary occupation, lack of agricultural equipment, no technical training on occupational development, lack of occupation and lack of systematic system for livestock raising. In response to the identified problems, the needs of the group were identified and prioritized accordingly. The highest priority of needs has many aspects comprising of land title, agricultural land, capital investment, adequate water. Other needs from the highest to the lowest priority were seedlings, supplementary occupation, secured occupation, agricultural equipment, fencing of horticultural area and technical training on agriculture. The vision of agricultural group was the availability of capital investment to support livelihoods of farmers and sufficient supply of agricultural produce in good quality.

Women's Group: Main problems identified by the women's group and ranked as highest priority were lack of capital and no fish cages for aquaculture. The second priority consisted of unemployment, lack of domestic water and lack of occupational equipment. Other priorities in sequential order were poor telephone communication, inadequate

support of vulnerable groups (widowers, orphans, handicapped, elderly and migrants), lack of day care center for pre-school children, lack of community trash bin, low education, inadequate space of permanent house constructed, lack of household water containers, lack of market for agricultural products and poor condition of tourist attractions. The highest priority needs identified by the women were capital investment and hatcheries for fish culture and green mussels. The second priorities were supplementary occupation, household water containers and occupational equipment of existing activities i.e., herbal-soap, bakery and furniture making activities. Other needs in the following priority were improved telephone network, social welfare and assistance to vulnerable groups mentioned above, day care and pre-school center, expansion of permanent house constructed by the government, scholarships for school children, English teachers, solid waste management, and promotion of eco-tourism. The vision of the women's groups was occupational security in the long term, effective and extensive women's participation to strengthen women's groups in future.

Livelihood Potential: Villagers suggested the following possible livelihoods that have high potential in this community. First is aquaculture consisting of fish cage and green mussel culture. Most fishermen have existing skills in aquaculture so this is seen as an easy to develop. Second is cashew nut processing as women already have indigenous knowledge of traditional processing techniques. Cashew nuts are available in the area and there is high market demand in Ranong. The women's group has already explored market possibilities. Third is a brick making due to high demand for building construction. Some fishermen have some skill in construction work. This could be a promising new occupation. Lastly are eco-tourism operations due to the natural beauty of the village, thus, this type of tourism could be promoted. The village is planning for about 10-20 rooms to be allocated for eco-tourism as this seems to have a very high potential to generate local employment. Local guide service is also possible. They are looking to assistance form the World Wildlife Fund, which has an office in the village. On other activities of the women's group, including the herbal soap-making and bakery-making, the women expect to continue these activities and need additional capital to purchase more equipment to expand these businesses. They also need assistance to explore more extensive marketing for their local products. They expressed interest in batik making which could be promoted in line with the eco-tourism.

Problems, Needs and Visions of the Community

The findings from the three separate occupational groups mentioned above, were discussed in a large group meeting. Attendants to the PRA meeting ranked priorities from highest to lowest based on a vote count. Those problems ranked highest (20-33 votes) were lack of capital and/or revolving fund to start or restart occupation, poor telephone communication, poor solid waste management (lack of community vehicle for garbage collection), inadequate compensation to Muslim teachers, lack of land title, no supplementary occupation, poor water drainage system, no sport playground, inadequate public lights, inadequate assistance and social welfare to venerable groups (widowers, orphans, handicapped, elderly and migrants), no public latrine, lack of drinking and domestic water, small size of permanent house, poor road conditions and lack of community kitchen. Those ranked as medium priorities (10-20 votes) were no village pavilion or permanent community hall, no natural wall to reduce velocity of tidal waves, lack of kitchen utensils for the village mosque, lack of a day care center for small children, lack of household water containers, no embankment building to protect soil

erosion. Two problems ranked as relatively low priorities with less than 10 votes were poor road conditions to access farmland and lack of community reading center.

Regarding community needs, the following were ranked as high priorities ranging between 21-38 votes: capital for investment (revolving fund), land title, available signal for cell phone connection, community vehicle for garbage collection, scholarships for pupils, upgrading road conditions (near Yalalah mosque), supplementary occupation, community kitchen, public lights, dredging canals, creeks and channels, social welfare to vulnerable groups mentioned above, village sport playground, public latrines, eco-tourism or local tourism center, household water containers and embankment to protect soil erosion caused from tsunamis. The following were ranked as medium priorities with votes ranging from 10-18: day care center for small children, village water supply, water drainage system, upgrading road condition (Soi Por-Kung), expansion of permanent houses (provided to tsunami affected households), village security guard booth, and natural wall to reduce velocity of tsunamis. Those were ranked as relatively low priorities with 5-10 votes were a village clock tower, village pavilion and village reading center.

Villagers were then asked to rank priorities on the basis of the urgent community needs of simple projects that could be implemented quickly. Villagers identified and prioritized those from the highest to the lowest rank which were upgrading road to a village mosque, community kitchen, construction of public latrines in a community hall, household water containers, village water supply, kitchen utensils for the community and for the village mosque, upgrading roads leading to agricultural lands and village reading center respectively.

The vision expressed by the community consisted of multi-dimensional aspects. These were enhancing potential in occupational development, good communication and transportation networks, high health status of villagers with a white zone free from drug addiction, enhancing religious practices to keep society in peace and order, a green village with friendly environment and promotion of eco-tourism to generate local employment.

VILLAGE 2: BAN TAP NUA

There were nearly 40 villagers who participated in the PRA meetings held at the Coastal Fishery Research Center located in this village.

Background

There are 309 households in this village with a total population of 1,369 persons. Relating to the livelihoods of village residents, 60% of households are engaged exclusively in fishing, 5% in fishing and agriculture, 30 % solely in agriculture, and 5 % on trading and wage labor. The majority of villagers are old settlers with some new immigrants from the neighboring provinces of Suratthai and Nakorn Srithammarat provinces. The village is divided into highland and lowland areas. Horticulture and livestock are practiced in the highlands with most residents having land title (Nor Sor 3). However, in the lowlands residents do not have land title (only the right for temporary land utilization without ownership, so-called "Por Poir Tor 5") and most of the lowland areas are located in Laem Son National Park. There are three informal occupational groups in this village. One is a furniture making group with 10 male members; another is broom making with 20 female members; and the other is a shrimp paste making group with 20 female members. All groups have been supported with limited capital from the Community Development Department.

Impact of the Tsunami on the Community and Livelihoods

Based on village and fishery maps prepared by the community, the impact was primarily severely damaged and destroyed houses located about 100-150 meters from the shoreline particularly along Prapas beach including the ground floor of the Coastal Fishery Research Center. All three food shops on the beach were wiped out together with nearly 50 houses nearby. It was reported that a total of 59 households were affected in this village. The community is connected with many islands near the coast that have healthy coral reefs and marine resources including Kham, Kham Yai, Larn, Yoong and Khao Kwai islands within Laem Son National Park. The tsunami caused severe destruction to natural and artificial reefs around those islands, to sea grass beds located 3 – 3.5 kilometers from the shoreline, to coastal forests in the national park about 100 meters from shore as well as to mangrove forests as far as 1.5 – 2.5 kilometers from the shoreline. Mangroves and cashew nut trees in the village were damaged by the tsunami. Most of the fishermen in this village were severely impacted from the tsunami, losing their boats, vessels, fishing gears, traps and other equipment. Impacts on farmers have been primarily restricted to damaged coastal agricultural lands and soil for various kinds of fruit plantations. Traders, specifically food shop operators along the beach area, lost their job and less work is available for wage laborers due to lack of alternative employment opportunities in most of villagers. Most of the women who are housewives of the fishermen also have no employment.

Seasonal Employment

From the seasonal calendar of this village, fishermen are engaged in catching shrimp from May to September, spotted featherback fish from October to April, indo-pacific mackerel fish from November to February, rastrellige kanagurta fish from November to March, crab trap from January to December, fish and squid traps from November to May, shrimp

push nets and green mussel and fish cage culture from January to December. Fishermen in this village are busy most of the time but with less activity during July to August period. For horticulture, farmers are engaged in oil palm cultivation throughout the year from, mangosteen from May to July, durian, May to June, cashew nut from March to April, rambutan from June to July, longkong from July to August, rubber from December to April, "sala" (snake skin fruit) from June to July, watermelon in November and other cash crops from October to June. For orchards, the farmers are less engaged during January to April. For livestock raising of cattle, buffalo, goat and poultry, farmers are engaged in these activities the whole year round. For women, those engaging in supplementary occupations are busy mainly from November to February and June to July. Traders are engaged throughout the year. Social activities are concentrated in January, March, April, August, October and December while traditional activities are frequently organized during October to December.

Assistance Provided after the Tsunami

The assistance from the following organizations has been provided to affected households:

- Department of Local Administration, MOI provided compensation for deaths, injured persons and housing damage.
- Department of Fisheries, MOAC provided compensation for fishing boat, gear and equipment.
- Royal Air Force constructed 51 permanent houses.
- The Christian Foundation built 3 permanent houses.
- Santi Nimitre group under the Royal Army Force supported occupational equipment worth 30,000 Baht.
- The Thai-German Foundation donated 9 fishing boats.
- Fishermen Folk Foundation donated more than 50 fishing boats.
- World vision supported toys for children and equipment for a play ground and a study tour to Bangkok for children and supported net making group.
- Ranong Red Cross distributed dry food.
- Department of Labor, Ministry of Labor provided cash of 200,000 Baht for occupational equipment.
- Rangsit University built a temporary community hall and provided training on food processing to women's groups.
- Ratchabhat University (South Phanakorn Campus) provided a three-day training on artificial flower-making and dry food processing to women's groups.
- The private sector donated household furniture.
- Department of General Health distributed one 50-litre household water container for each house.
- ARC (American Refugee Committee) supported on digging wells in this village in collaboration with Department of Mineral Resources

Criteria for Selection of Target Beneficiaries

Seven major criteria were listed in the meeting. These were:

- House (fully/partly) damage,

- Ship/boat/engine damage,
- Horticulture/livestock loss,
- Vulnerable groups (widows, orphans, elderly, handicapped and migrants),
- Hatchery damage,
- Occupational equipment loss (gill net and gear), and
- Death of household head.

Problems, Needs and Visions of Occupational Groups

Fishery Group: The major problems expressed by fishermen as highest priority were lack of capital or revolving fund, lack of supplementary occupation, shallow channel and creek and low price of marine products. Other problems in sequential order from the highest to the lowest rank were lack of fishery equipment, decline of aquatic animals, intrusion of commercial fishers, destruction of coral reefs, high cost of petrol, high price of fishery equipment, inconvenient navigation caused by river shoal up, lack of technical and financial support, lack of knowledge in aquaculture, destruction of mangroves, sea debris, restrictions on fishing in the national park area, lack of technical knowledge in aquaculture and ocean phobia. Seven needs were identified by this group with the first priority being additional capital to continue their fishing occupations. The following priorities from the highest to the lowest rank were fishery equipment, supplementary livelihoods on aquaculture, price control for marine products, village disaster and warning tower, fishery cooperative and dredging the shallow creek and channel. The vision of this group is to increase safety for fishery, control small-scale fishery equipment for sustainable resource utilization, reducing the debt of fishermen and increase the quantity of fish produced.

Agricultural Group (Horticulture and Livestock): The first prioritized problem of this group was lack of capital or revolving fund. The second ranked priorities were lack of agricultural equipment, lack of agricultural equipment, lack of road access to agricultural land, insufficient water supply for agricultural purposes, lack of fertilizer, lack of technical assistance or training, lack of land title/tenure. The third ranked priorities were poor environmental rehabilitation, lack of agricultural land, lack of seed and grain and no training center. In response to the identified problems, the needs of the group were identified. The first priority is providing capital investment to support livelihoods of farmers and agricultural equipment. The other priorities from highest to lowest were road improvements to agricultural land, water supply for agricultural purposes, fertilizer, land title/tenure, agricultural land, technical assistance and training, provision of seed and grain, and training center.

Women's Group: The prioritized problems of the women's group from highest to lowest order were lack of capital/revolving fund, lack of occupations, lack of skill on group organizing and management, unemployment/low income, lack of main and supplementary occupation, lack of welfare for widowers, elderly, orphans, handicapped, orphans, migrants and displaced persons, lack of technical assistance on packaging and marketing, and stress. The prioritized needs of the group from highest to lowest were capital/revolving fund, occupational equipment, skill training on group organizing and management, social welfare widows, elderly, orphans, handicapped, orphans, and migrants, technical assistance on training, supplementary occupation, strong group formation, and a day-care center for children. The vision of the women's group was

occupational security to support their households, strengthening roles of women in social and economic development and enhancing extensive women's participation.

Trading and Wage Labor: The following needs were identified by traders in this village comprising of revolving fund, supplementary occupation, cooperative or community shop for fishery equipment, grocery, sewing equipment and training for supplementary occupations. As for wage laborers, their identified needs were revolving funds and occupational equipment.

Livelihood Potential: The existing women groups of broom-making and shrimp paste continue their activities with technical assistance from C.D. Department and financial support from Department of Labor. After the tsunami, several additional occupational groups have been formed expecting to get financial support from various donors working in the area. After the tsunami, possible livelihoods were suggested by villagers. Fishers are interested in aquaculture, particularly on fish cage culture (37 members) and green mussel culture (25 members) as they have some skills in this area. Trap making could also be done by many households. Recently three groups were formed consisting of fish cage culture: with 37 members, green mussel culture with 25 members and crab culture with 15 members. There is a fishing net making group with a total of 15 members but the capital is insufficient to cover more members. The Santi Nimitre Group of the Royal Army contributed a total of 30,000 Baht to support the net making group. There are 20 members at present. For farmers, they were keen to raise cows and goats as they already have these basic skills. A goat raising group has been formed with a total of 15 members. For women, they were enthusiastic to have a stable primary occupation. After the training provided by Department of Labor, they started a mackerel steaming business (with 30 female members) and want to scale up this activity to cover additional households. The steamed mackerel group has received financial support of a total of 200,000 Baht from the Department of Labor to purchase equipment. This group has a total of 30 members. Some women have received training on artificial flower making and bakery and sea food processing after the tsunami, therefore, they are exploring financial support from donor agencies. They have no funding support yet.

Due to the existence of a well-known tourist attraction in this village (Prapas beach), villagers expressed their strong desire to develop eco-tourism in this community. Thus, occupations related to tourism such as local guiding, lodging and catering services or food shops for guests should be considered. The village has provided six rooms for a home stay in some of the permanent houses constructed for tsunami affected households located on Prapas beach.

Problems, Needs and Visions of Community

The process of problem identification and prioritization was followed in the same way already explained in Village 1 based on a vote count of attendants of the PRA meeting. Those ranked the highest (27-36 votes) were lack of capital or revolving fund, unemployment, lack of agricultural markets, no supplementary occupations, lack of drinking and domestic water, lack of a village disaster warning tower, lack of welfare for widows, elderly, orphans, handicapped, migrants and displaced persons, lack of land/land title and limited technical knowledge and skill for new occupations. Those ranked as medium priorities (19-25 votes) were destruction of coral reefs, high cost of petrol, lack of fishery equipment, no furniture and facilities in the community meeting room,

insufficient household water containers, psychological stress (after the tsunami), conflict between the commercial and small-scale fishery, lack of community hall, degradation of mangrove forests and sea debris. The following ranked as low priorities (2-17 votes): poor village road condition, unclear national park boundary, insufficient public lighting, decline of aquatic animals low price of marine products and ocean phobia.

For community needs, the following ranked as high priorities ((27-32 votes) desks and chairs for children at school (near Kamnan's house), capital or revolving funds. Agricultural market, supplementary occupations, a natural wall to reduce the velocity of tsunamis (pine trees), a community hall, local tourist service center, community trash bins, social welfare to widows, elderly, handicapped, orphans, migrants and displaced persons, reconstruction of vendor facilities along Prapas beach and a village disaster warning/broadcasting tower. The following ranked as medium priorities (18-25 votes): promotion of eco-tourism, early warning system, rehabilitation of natural resources, village mosque, evacuation bridge from village 2 to 7, upgrading village road condition, fishery equipment and English teachers. Those ranked as relatively low priorities (13-16 votes) included household water containers, dredging the channel and creek, expansion of permanent houses, village sport stadium/playground and surveying of coral reefs.

Priority simple projects were identified as tables and chairs for children at the school, building a natural wall (planting pine trees) for tsunami protection, a village broadcasting tower/disaster warning tower, upgrading village road conditions and household water containers.

The vision of this village was focused on rehabilitation of natural and marine resources particularly coral reef and mangroves, coastal forests and beaches which are the main tourist attractions of this community. In addition, the community expected its inhabitants to have security in occupations and raise public awareness on environmental conservation.

VILLAGE 3: BAN KAM PUAN

There were 81 villagers who attended the PRA meetings held at a community hall and at a village market.

Background

Altogether, there are 264 households with a total population of 1,233 persons. Regarding livelihoods of its inhabitants, 60 % of the households are engaged in fishing, 15 % in fishing and agriculture, 10 % solely agriculture, 10 % in trading and 5 % in wage labor. It is one of the oldest villages in this Tambon where most of the villagers are old settlers. It has served as a commercial center of the area. As a result, the proportion of traders is greater than other villages. Most of the land has been granted ownership title (Nor Sor 3) from the Land Department and this village is located outside Lam Son National Park. Livelihoods of villagers in this area are more engaged in horticulture and livestock raising than other villages due to a land tenure system. The village has no boundary connected to the Andaman Ocean like other four affected villages. However, most of fishers built their houses near the shoreline of village 2, which were completely wiped out by the tsunami. There are two informal occupational groups in this village with interest in green mussel culture with a total of 30 members and women's group with 25 members.

Impact of the Tsunami on the Community and Livelihoods

According to the village and fishery maps prepared in the meeting, no physical damage was seen in this village due to no connection to the ocean. Areas fished by the fishermen of this community are the same with the rest of four villages ranging between 1 – 4.5 kilometers from the shoreline and around the various islands of Kham, Kham Yai, Larn, Yoong and Khao Kwai within Laem Son National Park. In those areas, sea grasses and coral reefs were severely damaged. There are no mangroves or coastal forest in this community. However, the tsunami did have an impact by widening a village canal that connects villages 3 and 2. Also, many plots of agricultural land were damaged by the Tsunami causing soil salinity leading to low fertility. Farmers complained of low prices of various fruits due to the relatively smaller size as a consequence of poor soil conditions after the disaster. For fishermen, almost all of them lost their boats, vessels, gears and other equipment.

After a short recovery, many traders did well and made profits from sales of construction materials, housing furniture and occupational equipment because of the need to restart their livelihoods and rebuild houses of those affected. Later on however, they have been faced with the low purchasing power of villagers after the tsunami as most of villagers have no income or employment. For wage laborers, many of them looked for jobs outside the area since there is little demand for work in both in fishery and agriculture sectors.

Seasonal Calendar

According to a seasonal calendar of this village, fishermen were engaged throughout the year (January-December) in crab traps, fish culture and green mussel culture, fishing of spotted featherback from January to June and from October to December, fishing of indo-pacific mackerel from January to October. They catch shellfish in different periods of the year ranging between May to November for shrimp, November to April for crab and

squid. They are engaged in fishing year round as they fish for different species at different times of the year. For horticulture, farmers have various fruit plantations throughout the year particularly oil palm trees. Harvests are from April to June for mangosteen, May to July for rambutan, June to July for durian, July to August for longkong, December to April for rubber and December to March for other cash crops. For livestock raising of cattle, buffalo, goat and poultry, farmers are engaged in these activities throughout the year. For women in this village, those who have supplementary occupations are engaged throughout the year. Traditional activities in this village are focused during October to November. There are a handful of female traders occupied during May to July but are engaged in other types of supplemental occupations during the rest of the year. General traders of electronic equipment, clothes, grocery, food, vegetables, seafood, scraped coconut and tailors are engaged the whole year round.

Assistance Provided After the Tsunami

Several agencies have provided the following assistance to affected households of this village as follows:

- Department of Local Administration, MOI provided compensation for deaths, injured persons and housing damage.
- Department of Fisheries, MOAC provided compensation for fishing boat, gear and equipment.
- Royal Air Force constructed 3 permanent houses in village area and the rest are in village 2.
- The Christian Foundation built 2 permanent houses.
- Santi Nimitre group of the Royal Army Force provided cash of 30,000 Baht as a revolving fund.
- The Thai-German Foundation donated 5 fishing boats.
- World vision supported toys for children and equipment for a play ground and a study tour to Bangkok for children.
- Department of Labor, Ministry of Labor provided cash of 200,000 Baht for occupational equipment and provided training on bakery, dress-making and batik making.

Criteria for Selection of Target Beneficiaries

The following criteria proposed in the meeting were:

- House (fully/partly) damage,
- Ship/boat/engine damage,
- Horticulture/livestock loss,
- Vulnerable groups (widows, orphans, elderly, handicapped and migrants),
- Hatchery damage, and
- Occupational equipment loss (gill net and gear).

Problems, Needs and Visions of Occupational Groups

Fishery Group: The major problems expressed by fishermen as highest priority were lack of revolving fund, conflict between commercial and small-scale fishery. The second

prioritized problems were insufficient fishery equipment, high cost of petrol, shallow creek and canal, lack of life jacket and boat radio and low price of marine products. The third to the sixth prioritized problems in order were lack of fishing boats, lack of social welfare for widows, elderly, orphans, handicapped, and migrants, lack of buoys to mark safe areas for boats, unemployment, decrease in abundance of marine resources, intrusion of outside boats, and lack of pier. The following needs were identified and ranked. The first prioritized needs were government supported price for marine products and revolving funds. The second prioritized needs were petrol for fishing boats and fishery equipment, and equipment for hatcheries. A village pier, life jackets and boat radios, were ranked third place. The other prioritized needs from the fourth to sixth in order of priority were a hatchery center, defined boundary for the commercial and small-scale fishery, dredging the canal and channel, and boat engine. The vision of this group was to have revolving funds to improve the economic status of households, increase safety for fishery operations and more convenient navigation.

Agricultural Group (Horticulture and Livestock): Major problems ranked highest were lack of revolving fund, no land, lack of seed and grain, and high cost of agricultural equipment. The second prioritized problems were low price of agricultural product, no supplementary occupation and no agricultural market. The third to the fifth priorities in order were insufficient water supply, lack of watering equipment, lack of foodstuff for animal husbandry, and lack of fertilizer. The needs of the group were identified and prioritized accordingly. The first rank of needs were: a revolving fund, agricultural equipment, and agricultural market. The other needs prioritized in order were livestock breeding (cows, goats, buffalos and poultry), supplementary occupation, watering equipment, fertilizer, insecticide and pesticide, seedlings (rubber and fruit trees) and land for livestock raising. The vision of this group was the need for a revolving fund to improve agricultural product, low cost of agricultural input with government support and crop diversification of various kinds of fruit trees.

Women's Group: Major problems identified by the women's group and ranked as highest were lack of market of local products, lack of revolving funds, lack of occupational equipment, no supplementary occupation and lack of technical training on alternative livelihoods. The other priorities were inadequate welfare for widows, elderly, orphans, handicapped, migrants and displaced persons and lack of technical assistance in designing logos and packaging of local products. In response to above, the highest prioritized needs identified were social welfare for widows, elderly, orphans, handicapped, migrants and displaced persons, revolving fund, occupational equipment, technical support on designing logos and packaging of local products, supplementary occupations and technical training on alternative occupations. Other priorities were supplementary occupation and markets for local products. The vision of women was to strengthen capacity of the group in sustainable financial management, participate actively in social and occupational development and utilize creativity and indigenous knowledge in occupational development.

Trading and Wage Labor: Traders in this village expressed several needs including revolving fund for occupational development, supplementary occupation, a cooperative or community shop, grocery, sewing machines and training for new occupational opportunities and the sale of garments. The wage laborers needs are to have a stable income by increasing their knowledge and skill in alternative occupations if knowledge is enhanced and the capital is provided.

Livelihood Potential: Among fishermen, aquaculture is suggested to be an appropriate supplementary occupation including fish cage culture and green mussel culture. Livestock raising (cow and goat) activities were expressed by the agricultural group as many of them manage their own land. Female traders, wage laborers and members of women's group were interested in batik making as some of them had painting skills. Many activities have been launched in the women's group in this village consisting of making dish washing liquid, fish chips, shrimp paste and fish sauce. The C.D. Department provided some training before the tsunami and they have been running their own businesses for a couple of years. After the tsunami, the Labor Department and the private sector provided additional training on income generation including artificial flower making, bakery, shrimp chip, chili paste and banana processing. The women in this village have relatively better skills and group management as compared with those in other villages due to their long experience as entrepreneurs. In addition, grocery shops of this village could be promoted in line with the operation of garment business due to a marketing advantage and the presence of a local commercial center in this village.

Problems, Needs and Visions of the Community

The findings from the three distinct occupational groups mentioned above were consolidated and discussed in a large group meeting attended by all participants. They ranked the identified problems from highest to lowest based on a vote count. Those ranked the highest (66-81) were lack of scholarship for pupils, lack of capital for investment (revolving fund), inadequate community market, lack of toys and facilities for children in school, lack of chairs for a meeting room (multi purpose building), inadequate welfare to vulnerable groups (widows, elders, orphans, handicapped, migrants and displaced persons), lack of drinking water, no supplementary occupation, and lack of agricultural market (crops, fruits and fisheries). Those ranked as medium priorities (21-61 votes) included no community (commercial) bank, lack of occupational equipment (fishery and other), no catering building for mosque, lack of public care for common property, drug addiction among youngsters, no community vehicle for solid waste collection, low level of unity in community, no signboard indicating village road, no transparency in the implementation of existing revolving funds in the village, limited technical knowledge/skill for new occupation, ineffective use of village broadcasting tower and problems with the water drainage system. The following were ranked as low priorities: no community incinerator, poor village road condition, discontinuation of village development fund, lack of community reading center/library, no village sport stadium/playground and weak group formation.

Regarding community needs, the following needs ranked as high priorities (42-66 votes): capital for investment (revolving fund), social welfare to vulnerable groups (widows, elders, orphans, handicapped, migrants and displaced persons), household water containers, occupational equipment (fishery and other), scholarships for pupils, supplementary occupation for youngsters, an improved school fence, furniture (desks and tables) and facility (fan) in the community hall, catering building/facilities for mosque and a commercial bank. The medium priorities (19 to 39 votes) were clean drinking water, community market, equipment for learning and skill improvement for the school, agricultural market, skill training center (for housewives and youth group), supplementary occupation, expansion of permanent houses (of tsunami victims), dredging the canal and a water drainage system for mosque. Low priorities (4 - 15 votes) were village security

guard booth, signboard indicating village road and name of existing organizations, village sport playground/stadium, village multi-purpose building/community hall, village disaster warning/broadcasting tower, technical knowledge/skill for new occupation, village side walk road, community incinerator, continuation of village development fund, low level of unity in community, information dissemination and transparency in the implementation of existing revolving fund, awareness and public care in common property and occupational security among the youth.

Villagers made priorities based on simple projects that could be implemented immediately. They ranked the following from highest to lowest rank: household water containers, tables, chairs, fans for a village meeting hall, community kitchen (near village mosque), community market (to serve as a sub-district market), occupational equipment, occupational training center for women, housewife and youth, water drainage system (in front of village market) and signpost showing the direction, name of local roads and organizations.

The vision of the community was promoting unity and solidarity of local people which is the key for sustainable development. Occupational security and stability for all groups would improve livelihoods and quality of life of villagers as a whole.

VILLAGE 4: BAN PHUKHAO THONG

There were 48 villagers that attended the PRA meeting held at a religious school in the village. The official name of this village is "Ban Phukhao Thong but the local community refers to the name as "Ban Tha Klang". Therefore there is often some confusion about which village is being referred to, and in this case they are one in the same, and also known as Village #4.

Background

There are 208 households with a total population of 1,085 persons. Regarding livelihoods of its inhabitants, 80% of the households are engaged in fishing, 10% in fishing and agriculture, 5 % solely agriculture and 5% in trading and wage labor. The village area is partly contained in Laem Son National Park particularly in the lowland area along the beach and the mangrove areas. This is the village where the local government office or Tambon Administrative Organization (TAO) is located. Most of local people are settled along the main village road which is called "Tha Klang" road and runs perpendicular to the shoreline. The houses are clustered on both sides of the road and are surrounded by creeks and mangroves. Before the tsunami, there were two major local groups in the village: a Fishery Cooperative with a total of 100 members and green mussel culture group with a total of 30 members.

Impact on Tsunami on Community and Livelihoods

Based on village and fishery maps prepared by the community, the impact was primarily damaged houses located about 100-150 meters from the shoreline. It was reported that a total of 12 households were affected in this village but the owners were unable to claim any official compensation on their housing damage by any government agency because their houses had not been formally registered earlier at the District Registrar Office. A portion of the fishing pier also collapsed. Similar to all the villages in the area, the community is connected with many islands near the coast where there are healthy coral reefs and marine resources including Kham, Kham Yai, Larn, Yoong and Khao Kwai islands within Laem Son National Park. The tsunami caused severe destruction to natural coral and coral reefs around those islands, to sea grasses from 3 – 3.5 kilometers far from the shoreline, to coastal forests in the national park about 100 meters from shore and the mangrove forests from 1.5 – 2.5 kilometers from the shoreline. The mangroves, pine trees and cashew nut trees along the coast were damaged by the tsunami.

Most of the fishermen in this village were impacted by the tsunami, losing their boats, vessels, fishing gears, traps and other equipment. Impacts on farmers were damaged coastal agricultural lands of eight farmers which are no longer fertile due to salinity intrusion. A few farmers lost their cows. There was some impact to local traders and wage laborers who have lost jobs opportunities. Most of women who were housewives of the fishermen have no full time occupation.

Seasonal Calendar

According to a seasonal calendar of this village, fishermen were engaged throughout the year (January-December) in crab trapping, fish culture and green mussel culture as well as fishing of spotted, fishing of indo-pacific mackerel from November to March and

rastrellige kanagurta from November to March. They catch shellfish in different periods of the year ranging between April to September for shrimp, November to May for crab and squid. They are engaged the whole year round for different types of fishery. For horticulture, farmers have various fruit plantations throughout the year particularly oil palm trees. Harvests are from May to June for mangosteen, August to September for rambutan, June to July for durian, July to August for longkong, December to April for rubber and December to March for other cash crops. For livestock raising of cattle, goat and poultry, farmers are engaged in these activities throughout the year. For women in this village, a few have supplementary occupations and are engaged throughout the year. Mostly the women in this village are still unemployed. Traditional activities in this village are organized during October to November. A handful of female traders are active during January to May, but are then involved in other supplemental activities during the rest of the year

Assistance Provided After the Tsunami

Several agencies have provided the following assistance to affected households of this village hereunder:

- Department of Local Administration, MOI provided compensation for deaths, injured persons and housing damage.
- Department of Fisheries, MOAC provided compensation for fishing boat, gear and equipment.
- Santi Nimitre group of the Royal Army Force provided cash of 30,000 Baht as a revolving fund for making a crab tap.
- The Thai-German Foundation donated 15 fishing boats.
- United Arab Emirates donated 6 small fishing boats
- World vision supported toys for children and equipment for a play ground and a study tour to Bangkok for children.
- Thai Cement Co. Ltd. provided total cash of 300,000 Baht for a revolving fund on occupational recovery.

Criteria for Selection of Target Beneficiaries

The following criteria proposed in the meeting were:

- House (fully/partly) damage,
- Ship/boat/engine damage,
- Horticulture/livestock loss,
- Vulnerable groups (widows, orphans, elderly, handicapped and migrants),
- Hatchery damage,
- Occupational equipment loss (gill net and gear), and
- Death of household head.

Problems, Needs and Visions of Occupational Groups

Fishery Group: The major problems expressed by the fishermen from highest to lowest priorities in sequential order were: limited technical knowledge in the fishery, conflict between the commercial and small-scale fishery, lack of supplementary occupation, sea

debris, lack of boat radio, low price of marine products, high price of fishery equipment, changing of coral reef line after tsunami, and lack of life jackets in fishing boats. The following needs expressed by the group from highest to lowest were support of aquaculture, cleaning of sea debris, supplementary occupation on aquaculture, fishery equipment/fishery cooperative, price guarantee for marine products, boat radio/village disaster warning and broadcasting tower, life jacket on fishing boat, identify boundary between commercial and small-scale fishery, and survey coral reef line. The vision of this group included control of fishing effort for sustainable resource management, reducing impacts on the small-scale fishery, reducing problems of destruction of fishery equipment and conservation of marine resources, reducing unemployment rate and support for occupational opportunities, decreasing debt of fishermen, support the continuation of fishery occupations, increasing income for fishermen, improving quality of fish breeds, and enhancing safety and navigation systems by providing knowledge and information to fishermen.

Agricultural Group (Horticulture and Livestock): Major problems identified from farmers from highest to lowest in sequential order were: inadequate funds, lack of water supply for agricultural purpose, lack of agricultural equipment, lack of agricultural market, low price of agricultural products, lack of fertilizer, lack of land, lack of seed and grain, lack of road access to farm land and poor environmental rehabilitation. In relation to the above mentioned problems, the following needs were identified and prioritized consisting of revolving fund (with no interest), livestock breeding (cow, buffalo and goat), agricultural market, watering equipment (pump, pipe and sprinkle), agricultural inputs (fertilizer, pesticide and insecticide), seeds (palm tree, rubber and fruit trees), technical training on agriculture, knowledge on systematic livestock raising, road access to farmland, and environmental rehabilitation. The vision of this group was supplementary occupations to support their insecure occupation due to natural disaster and technical knowledge in agriculture focusing on horticultural and livestock development.

Women's Group: Key problems of the women's group were identified and ranked in priorities from highest to lowest in sequential order consisting of lack of revolving fund, lack of main occupation, lack of skill on new occupation, lack of support from inside and outside organizations, decrease of income after the tsunami, lack of group organization, lack of skill training, and stress (after the tsunami). In response to the above-mentioned problems, the following needs were identified and prioritized in sequential order comprising of revolving fund, new occupations, community hall as a training center, occupational equipment, local group formation, skill training, and a market for local products. The vision of this group was to increase social equality, enhance self-reliance of women and promoting women's participation in social and political development. Not only the women but also traders and wage laborers expressed their needs to have a revolving fund to restart their livelihood with new and/or alternative occupation with skill training.

Livelihood Potential: Villagers suggested possible livelihoods having high potential in this community. For fishermen, aquaculture (fish and green mussel culture) could be promoted and intensified as some of them had practiced these activities even before the tsunami. Among farmers, cow and goat raising were proposed as most of them expect to learn a more systematic system of livestock rearing. For women, several activities were identified consisting of net making, shrimp chips, crab processing, salted fish, trading

(garment and grocery), dress-making, embroidery work (making Muslim hair dress for ladies), soap-making, liquid dish washing, food processing, barber/hair-dresser, fish sauce and shrimp paste. Among those, the crab processing and net making were ranked as the most potential supplementary occupations for among wives of the fishermen who often practiced these activities before the tsunami. Many women joined with the women's group in village 3 in the liquid dish soap making and making shrimp chips, where they had gained knowledge and skills. They felt these activities could be implemented relatively easily if funding support from a donor was provided.

Problems, Needs and Visions of the Community

The findings from the three occupational groups were consolidated into a large group meeting participated by all attendants. They ranked priorities of those problems from highest to lowest according to a count vote. Those ranked highest (31-43 votes) were lack of capital for investment (revolving fund, lack of fishery equipment, lack of agricultural market (crops, fruits and fisheries), periodic flooding in front of the mosque, lack of furniture (chair and desk) in the school, inadequate welfare for vulnerable groups (widowers, elderly, orphans, handicapped, migrants and displaced persons), insufficient household water containers, poor condition of village road/narrow road, no supplementary occupation, and no public latrines. Those ranked as medium priorities (21 – 28 votes) were lack of drinking and domestic water, lack of an English teacher, no village broadcasting tower, insufficient boat dock, lack of bridge to connect community settlements, problem of displaced persons (Thai residents), lack of eco-tourism, no coral reef survey, lack of a community hall (for meeting), and no alternative occupations. The following problems ranked as low priorities (7 – 21 votes): lack of awareness in household sanitation and environment, unorganized boat parking, inadequate electricity coverage, and limited technical knowledge/skill for new occupation.

Regarding community needs, the highest priorities (31 – 48 votes) were: supplementary occupation, capital for investment (revolving fund), fishery equipment, life jacket on fishery boat, filling up land (mosque and religious school), household water container, upgrading/expansion village main road (Soi Tha Klang), community hall/village multi-purpose building, welfare to widowers (compensation/salary), village disaster warning/broadcasting tower, and rehabilitation of aquatic animals. The following ranked as medium priorities (19 – 30 votes): reforestation of mangrove forests, boat radio and network, bridge to connect village settlements, furniture (desks and chairs) for a religious school, fixed buoys to identify safe area for boats, welfare to displaced people (Thai residents), and an English teacher. Those ranked as low priorities (11 – 17 votes) included: surveying of coral reef, community trash bin, solid waste management, village reading center/library, and public lighting/electricity.

Villagers prioritized simple projects that could be implemented without delay. Their prioritization from those from the highest to the lowest rank were ground leveling in front of the village religious school, household water containers, road expansion (Soi Tha Khang), community hall, village broadcasting tower, toilets, tables, chairs, and other facilities for the religious school, and a village reading center/library.

The vision of this village was rehabilitation of marine resources and mangrove forests, promoting stable and supplementary occupation including women and enhancing sustainable fishery and coastal resource management in the long run.

VILLAGE 7: BAN HARD SAI KHAO

There were 61 villagers who participated in the PRA meetings held at a community hall of a village.

Background

There are 115 households in this village with a total population of 516 persons. Relating to the livelihoods of village residents, 90% of households are engaged exclusively in fishing, 5% in fishing and agriculture, and 5% on trading and wage labor. The village was formally established in October 2004 and was previously a part of Village 3. The majority of villagers are a mixture of old and new settlers. The new comers are from neighboring provinces of Chumporn and Suratthani, from the west of Thailand (Petchaburi and Prachurb Kirikhan), the Northeast (Sakorn Nakorn, Nongkai and Udon Thani), and the North (Chiangrai). The whole village area is within Lam Son National Park. Thus, village residents do not have land title (only the right for temporary land utilization without ownership, so-called "Por Poir Tor 5").

Before the tsunami, there are six occupational groups in this village comprising of:

- Fish cage and green mussel culture: 20 members,
- Freshwater fish raising (cat fish and tilapia): altogether 6 groups with members ranging between 8-14 persons of each group,
- Traditional herb processing: 7 members,
- Fish sauce making: 12 female members,
- Curry paste making: 8 female members, and
- Seafood processing: 13 female members.

The last three groups have periodically been supported with limited capital from the Community Development Department of MOI.

Impact of the Tsunami on the Community and Livelihoods

Based on village and fishery maps prepared by the community, the impact was primarily severely damaged and destroyed houses located about 100-150 meters from the shoreline. It was reported that a total of 56 households were affected in this village. The community is connected with many islands near the coast that have healthy coral reefs and marine resources including Kham, Kham Yai, Larn, Yoong and Khao Kwai islands within Laem Son National Park. The tsunami caused severe destruction to natural and artificial reefs around those islands, to sea grass beds located 3 – 3.5 kilometers from the shoreline, to coastal forests in the national park about 100 meters from shore as well as to mangrove forests as far as 1.5 – 2.5 kilometers from the shoreline. Sea debris is widely spread out in the ocean, which tears gears of fishermen. Mangroves and cashew nut trees in the village were damaged by the tsunami. Mangrove forest destroyed by the tsunami totals approximately 30 rai of land. This mangrove forest damage is in villages 2 and 3. The village water drainage system was damaged for a total length of 400-500 meters. Similarly, a village concrete road was impacted for a total length of 200-300 meters together with two bridges.

Most of the fishermen in this village were severely impacted from the tsunami, losing their boats, vessels, fishing gears, traps and other equipment. Impacts on farmers have been primarily restricted to damaged coastal agricultural lands and soil for various kinds of fruit plantations particularly cashew nut trees. Traders lost their job and less work is available for wage laborers due to lack of alternative employment opportunities. Most of the women who are housewives of the fishermen also have no employment.

Seasonal Employment

From the seasonal calendar of this village, fishermen are engaged in catching shrimp throughout the year, spotted featherback fish from January to June, indo-pacific mackerel fish from January to April, crab trap from September to June, squid trap from November to May, green mussel and fish cage culture from January to December. Fishermen in this village are busy most of the time but with less activity during June to September period. For horticulture, farmers are engaged in oil palm cultivation throughout the year from, mangosteen from May to July, cashew nut from March to April, rambutan from May to July, longkong from July to August and rubber from December to April. For orchards, the farmers are less engaged during January to April. For livestock raising of cattle, goat and poultry, farmers are engaged in these activities the whole year round. For women, those engaging in supplementary occupations are busy mainly from January to May. Traders are engaged throughout the year. Social activities are concentrated in March, August and December while traditional activities are frequently organized during October to December.

Assistance Provided after the Tsunami

The assistance from the following organizations has been provided to affected households:

- Department of Local Administration, MOI provided compensation for deaths, injured persons and housing damage.
- Department of Fisheries, MOAC provided compensation for fishing boat, gear and equipment.
- A private sector contributed cash of 1,000 Baht to all affected households.
- Royal Air Force constructed 50 permanent houses.
- The Christian Foundation built 11 permanent houses.
- Santi Nimitre group under the Royal Army Force supported occupational equipment worth 30,000 Baht.
- ARC (American Refugee Committee) donated 58 fishing boats.
- World vision supported toys for children and equipment for a playground and a study tour to Bangkok for children and supported net making group.
- Rangsit University renovated the floor of a village community hall.
- Saha Thai (Thai Union) donated school uniforms for pupils.
- Pak Chan Resettlement Scheme supported a revolving fund to 4 fish raising groups with a total of 4,000 Baht to each member.
- Labor Department contributed cash of 1,500 Baht for each member of the fish sauce making and sea food processing of women's groups.
- Bank of Agriculture and Agricultural Cooperative (BAAC) organized occupational training activities for 15 women on multi-purpose liquid making, dress making, batik

making and bakery (“Thong Muan”). The BAAC donated a sewing machine and bakery equipment to the women’s groups.

Criteria for Selection of Target Beneficiaries

Seven major criteria were listed in the meeting. These were:

- House (fully/partly) damage,
- Ship/boat/engine damage,
- Horticulture/livestock loss,
- Vulnerable groups (widows, orphans, elderly, handicapped and migrants),
- Hatchery damage,
- Occupational equipment loss (gill net and gear), and
- Death of household head.

Problems, Needs and Visions of Occupational Groups

Fishery Group: Altogether sixteen problems were identified and ranked by fishermen from highest to lowest order. There were the following: lack of revolving fund for fishery, lack of a security boat and guard, lack of supplementary occupation, lack of storage for fishery equipment, shallow canal and creek, lack of fishery equipment, degradation of mangrove forest, lack of boat/ship dock, conflict between commercial and small-scale fishery, lack of boat radio and communication network for fishery purpose, change of artificial coral reef line, unorganized pier, sea debris, decrease of marine resources, high cost of patrol, and low price of marine products. Nine needs were identified with the first priority having supplementary occupation. The other priorities from highest to lowest in order were embankment to protect tidal wave, village pier, fishery equipment, price guarantee for marine products, revolving fund, fishery cooperative (patrol and equipment), storage for fishery equipment, and mangrove replanting, boat radio and communication network. The vision of this group is to increase safety for fishery, sustain small-scale fishery and increase its potentiality for marine resource utilization, reducing the debt of fishermen and increase the quantity of fish produced.

Agricultural Group (Horticulture and Livestock): The following problems were identified and prioritized by farmers from highest to lowest rank in sequential order. These were lack of revolving fund, lack of equipment, no supplementary occupation, limited knowledge in agriculture, lack of fresh water, and low price of agricultural products. In this group, six needs were identified and ranked in sequential order from highest to lowest consisting of revolving fund, supplementary occupation, agricultural equipment, technical training on agriculture, fresh water, and price guarantee for agricultural products. The vision of this group was agricultural diversification to increase farm income and reduce marketing risk among farmers.

Women’s Group: The prioritized problems of the women’s group from highest to lowest order were lack of equipment for occupation, unemployment of housewife, lack of capital for investment, lack of market, small size and limited space in permanent houses, lack of technical training, lack of raw material for occupation, lack of solidarity in village, lack of scholarship for education, lack of storage, lack of social welfare for vulnerable groups (elders, handicapped, orphans widows, migrants), and stress after the tsunami. The prioritized needs of the women from highest to lowest were capital for investment, raw

materials, household water containers, market for local products, community trash bin and equipment for occupation. The vision of the women's group was livelihood security with secure occupational strengthening, and new roles of women in social and economic development and enhancing extensive women's participation particularly in occupational development.

Trading and Wage Labor: The following needs were identified by traders in this village comprising of revolving fund, supplementary occupation, cooperative or community shop for fishery equipment, grocery, sewing equipment and training for supplementary occupations. As for wage laborers, their identified needs were revolving fund, occupational equipment and a repair shop on mechanics.

Livelihood Potential: In addition to the six existing occupational groups in this village, several groups have been setting up additional livelihood activities after the tsunami and are listed below.

- Fish cage culture,
- Crab trap and net making (20 members) with funding support of 4,000 Baht for each member from Pak Chan resettlement scheme,
- Repair of fishing boat and equipment (15 members), and
- Women's groups (multi-purpose liquid making with 24 members, dress-making with 18 members and bakery ("Thong Muan") with 8 members. BAAC provided a sewing machine for the dress-making group and equipment for the bakery group.

The women groups of seafood processing (dry squid, salted fish, fish source making and sweeten fish) and curry paste making want to continue their activities with additional funding support. Villagers were also interested to develop eco-tourism in this community. Thus, occupations related to tourism such as local guiding, lodging and catering services or food shops for guests should be considered. The village has provided six to ten rooms for a home stay in some of the permanent houses constructed for tsunami affected households in the village. The fishermen expressed interest in supplementary occupations on fish cage culture and green mussel culture where they already have some experience. Some of them had a farm in an adjacent sub-district in Tambon Na Kha due to better quality of seawater as compared to this village. Many farmers want to continue freshwater fish raising (catfish and tilapia) as they have sufficient land and basic knowledge and skills even before the tsunami. The farmers also expressed their interest in frog culture, goat and cow raising.

Problems, Needs and Visions of Community

The process of problem identification and prioritization was followed in the same way already explained in earlier villages based on a vote count of attendants of the PRA meeting. Those ranked the highest (41-54 votes) were unemployment, low price of aquaculture/crops and fruits, lack of capital for investment (revolving fund), inadequate village pier, and insufficient water containers to store water. Those ranked as medium priorities (23-36 votes) were poor condition of village roads, lack of a day care center for children, degradation of mangrove forests, limited technical knowledge, inadequate welfare to widows, elders, orphans, handicapped, migrants and displaced persons, inadequate public lights/electricity, beach erosion due to the tsunami, lack of a boat radio and communication network. The following ranked as low priorities (3-15 votes): lack of

an evacuation place, insufficient pier, insufficient boat dock (medium and small scale), lack of community trash bins, and lack of bridge to connect community settlements (from village 2 to village 7).

For community needs, the following ranked as high priorities (47-61 votes) were supplementary occupation, capital/revolving fund, village pier, and fishery equipment. The following ranked as medium priorities (18-37 votes): social welfare for widows, elders, orphans, handicapped, migrants and displaced persons, upgrading village road promotion of eco-tourism, water drainage system, public lights/electricity, dredging canals and technical knowledge/skill for occupation. Those ranked as relatively low priorities (9-14 votes) included reforestation of mangrove forest, boat radio and communication network, village sport playground/stadium, household water containers, fishery cooperative (patrol and fishery equipment), evacuation area from tsunami, village pier, and an evacuation bridge to connect village 2 with village 7.

Priority of simple projects that could be implemented quickly were identified and prioritized from highest to lowest comprising of public lights/electricity, embankment to protect beach erosion, upgrade village road condition, dredging canal, creek and channel, public park, and household water containers.

The vision of this village was focused on promoting local economic development, occupational diversification (particularly for women), increasing village safety, enhancing fishery potential and marine resource occupations based on natural resources conservation and environmental protection.

4. Synthesis of Issues and Needs of Affected Villages

This section synthesizes the coordinated outputs of all five affected villages based on the PRA outputs described above.

4.1 Impacts of the Tsunami on Community and National Resources and Environment

Villagers in all five villages described the primary damages to their community and the natural resources that are summarized in Tables 6 and 7 below. Impacts included the loss of fishing boats, gears and equipment of fishermen, as well as horticulture and livestock of farmers. The PRA findings revealed the common concern of fishermen regarding the intrusion of commercial fishers within the 3,000 meter limit from the coastline. They believe that this has caused the destruction of the small-scale fishery that is widely practiced by all of these villages and where a large proportion of residents, and in many cases a majority of residents, depend on for their livelihood. Housing and infrastructure were also greatly impacted, particularly roads, electricity and water supply systems. Infrastructure rehabilitation efforts therefore need to be focused on rebuilding of houses and infrastructure that has been damaged and has not yet been reconstructed.

Regarding the impact on national resources and environment, the communities mentioned severe river/estuary shoaling, damage to mangrove forests, natural and artificial coral reefs and beach erosion. As a consequence, they mentioned that there is plentiful debris on the ocean floor and also believe a decline of aquatic animals resulted from the tsunami as well. All villages described similar types of impacts in the ocean as they utilize the same coastal fishery zone. In all affected communities, mangrove reforestation and village environmental rehabilitation need specific attention in the near future.

4.2 Seasonal Employment

Villagers in the five communities have different periods of their seasonal employment (see Appendix 11). Fishermen are quite busy the whole year and vary fishing effort and targeted species by season. Most of them are engaged most heavily from October to April. They have less work during the monsoon period from May to September. Farmers who practice horticulture and/or livestock are engaged in various activities according to the type of fruit trees and cash crops that they have. After harvesting of various kinds of fruits (mangosteen, longkong, rambutan and durian), the farmers normally have less work during September to December in all villages except cash crops in villages 3 and 4 that are grown in the dry season (December to April). Those who raise livestock in all villages are also engaged throughout the year but this is not a full time occupation and they said they can manage time for other work. For women who are housewives of fishermen, most have no jobs and are free throughout the year. Traders in village 3, where a community market is located, were employed full time. The traders in other villages are rather flexible in their engagement except for a hand full who have a grocery store and sell food, vegetables, seafood and fruits year round.

The seasonal employment periods mentioned above imply possible supplementary occupations can be promoted among members of affected households including fishermen, farmers and women, particularly housewives of fishermen who have no occupation. Diversification of income generating activities will make their livelihoods

Table 6: Impacts of the Tsunami as Perceived by the Community

Damages	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Embankments	✓	✓	✓	✓	✓	5
Loss of fishery equipment	✓	✓	✓	✓	✓	5
Intrusion of commercial fishers within 3000 m limit from the coastline	✓	✓	✓	✓	✓	5
Horticulture and livestock	✓	✓	✓	✓	✓	5
Housing	✓	✓		✓	✓	4
Road	✓	✓		✓	✓	4
Electricity	✓	✓		✓	✓	4
Water supply system	✓	✓			✓	3

Table 7: Impact on National Resources and Environment as Perceived by the Community

Damages	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
River/estuary shoaling	✓	✓	✓	✓	✓	5
Damage to mangrove forests	✓	✓	✓	✓	✓	5
Damage to coral reefs	✓	✓	✓	✓	✓	5
Debris on the ocean floor	✓	✓	✓	✓	✓	5
Decline of aquatic resources	✓	✓	✓	✓	✓	5
Damage to artificial reefs	✓	✓	✓	✓	✓	5
Beach erosion	✓	✓		✓	✓	4

more secure and less dependent on only one primary occupation. However, care must be taken to ensure that development of supplemental and alternative employment does not have negative social consequences as well.

4.3 Assistance Provided After the Tsunami

Altogether there are 26 donor groups (Table 8) providing assistance to the affected communities including government agencies, NGOs, education institutes, private sector groups and individual donors. The major government donors found in all villages are Department of Local Administration, Fisheries, Labor, Royal Air Force and Border Police, and the Royal Army (Santi Nimitre group). The main NGOs found in almost all of the affected villages are World Vision, Christian Foundation, Thai-German Foundation, while ARC has worked in only in a few villages so far. The rest of donors are scattered in their support in individual villages.

Donors are providing many types of assistance (Table 9) to all five affected villages ranging from compensation for loss of life, property and occupational equipment, provision of initial capital for occupational recovery and revolving funds, basic infrastructure improvement and social development. Out of 155 houses destroyed by the tsunami (see Table 5 of Section 3: PRA Outputs), 140 permanent houses have been rebuilt mainly by the Royal Air Force and the Christian Foundation. Although almost all permanent houses have been rebuilt, several complaints were made about the design of construction and construction materials and layout of the new settlement areas. In village 2, the new housing settlement is approximately 100 meters from the shoreline and in a low lying area. Therefore, it is vulnerable again to another tsunami as it is close to the ocean. This is basically due to land title issues as most of this village area is in the national park. Other concerns of the new inhabitants are that the type of housing construction materials is not of a specific natural disaster resistant design. It has been reported that zinc roofs of two newly constructed houses in village 7 have already been blown off by a rainstorm. Most of the residents resettled in these houses want a bigger space in the house to accommodate large family members and to strengthen the housing structure to ensure its resistance from strong winds and rainstorms. Some affected households preferred the new house to be reconstructed in the same location as their own house rather than new settlement areas. However, in this case they had to construct it by themselves with limited financial support from government agencies, which is insufficient. Some of the affected houses in village 4 have not yet received any assistance on rebuilding due to the lack of any official document or certificate of registration for their house (prior to the tsunami) from the local authority. Thus, no compensation could be given to them from any government sources.

Concerning the fishery, of a total of 220 boats destroyed (as reported by key informants - TAO officials and DoF), 185 boats have been already been replaced. However, many fishermen still cannot go out to the ocean. Despite having their boat replaced, they have no boat engine, gear or fishing equipment. As reported from villages 2 and 7, many of them have to share the same fishing boat with 3-7 fishermen nowadays. Specific information on boat engines, fishing gear and equipment are being compiled in the area as the assistance on this aspect is still going on.

The occupational recovery both in cash contribution and training were given by several organizations in all affected villages except village 4. However this village has been

Table 8: List of Donor Groups

Donors	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Department of Local Administration	x	x	x	x	x	5
Department of Fishery	x	x	x	x	x	5
Royal Air Force and Police Border	x	x	x	-	x	4
Departments of Labor and Community Development (C.D.)	x	x	x	-	x	4
Santi Nimitre Group under the Royal Army Force	-	x	x	x	x	4
World Vision Organization	-	x	x	x	x	4
Christian Foundation	-	x	x	-	x	3
Thai-German Foundation	-	x	x	x	-	3
Private Sector/Individuals	x	x	-	-	x	3
Rangsit University	-	x	-	-	x	2
ARC (American Refugee Committee) in a collaboration with Department of Mineral Resources	-	x	-	-	x	2
Chulalongkorn University	x	-	-	-	-	1
Technical School from Singburi Province	x	-	-	-	-	1
Northern Andaman Relief	x	-	-	-	-	1
ADRA	x	-	-	-	-	1
Hard Thip Co. Ltd.	x	-	-	-	-	1
Coastal Fishery Center	x	-	-	-	-	1
Fishermen Folk Foundation	-	x	-	-	-	1
Ranong Provincial Red Cross	-	x	-	-	-	1
Ratchabhat University (South Phanakorn Campus)	-	x	-	-	-	1
Department of General Health	-	x	-	-	-	1
Thai Cement Co. Ltd.	-	-	-	x	-	1
United Arab Emeritus	-	-	-	x	-	1
Saha Thai (Thai Union)	-	-	-	-	x	1
Pak Chan Resettlement Scheme	-	-	-	-	x	1
Bank of Agriculture and Agricultural Cooperative (BAAC)	-	-	-	-	x	1

Table 9: Type of Assistance/Compensation Provided

Type of Assistance/ Compensation	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Compensation for deaths, injured persons and housing	x	x	x	x	x	5
Compensation for fishing boats, gear and equipment	x	x	x	x	x	5
Fishing boats	42	59	5	21	58	5
Toy, playground and study tour for children to Bangkok	x	x	x	x	x	5
Permanent houses (unit)	20	54	5	-	61	4
Occupational equipment (in Baht)and trainings (herbal soap, bakery, cashew nut, dress-making, batik-making, furniture, artificial flower-making and food processing)	250,000	230,000	200,000	-	30,000	4
Community meeting hall	200,000 Baht	Temporary	-	-	-	2
Crab trap making (Baht)	100,000	-	-	30,000	-	2
Revolving Fund (Baht)	-	-	30,000	300,000	-	2
Floor of a village community hall	-	-	-	-	x	1
Temporary primary school	x	-	-	-	-	1
Fishing gear and equipment	x	-	-	-	-	1
Funds (in Baht) for fishing boats, renovation of a community kitchen and herbal soap making	150,000	-	-	-	-	1
Assistance to net making group	-	x	-	-	-	1
Revolving Fund for 4 fish raising (4,000 baht/member)	-	-	-	-	x	1
Household furniture	-	x	-	-	-	1
Dry food	-	x	-	-	-	1
50-liter household water container	-	x	-	-	-	1
Digging wells	-	x	-	-	-	1
English teaching, toy, playground equipment to school	x	-	-	-	-	1
School uniforms for pupils	-	-	-	-	x	1
Cash donation (Baht) to affected households	-	-	-	-	1,000	1

obtained a big amount of a revolving fund (300,000 Baht) while it is 150,000 for village 1, 30,000 Baht for village 3 and also for village 7 has been supported only for fish raising. This should be investigated further and consider additional assistance to village 7 in livelihoods activities as there are many occupational groups particularly women have been formed which are quite diversified in their activities.

The assistance on infrastructure was not clearly reported except from villages 1 and 2 for renovation of their community hall and also a temporary school in village 1 as well. Only village 2 has obtained some assistance on water supply while no report from other villages (Table 9 in Appendix 11).

4.4 Criteria for Selection of Targeted Beneficiaries

According to Table 7 in Appendix 11, villagers of five affected communities had a consensus on five identified criteria consisting of damages of affected households on their house/partial) damage, ship/boat/engine, horticulture/livestock, hatchery and those who are impacted by the tsunami and became vulnerable including widows, orphans, elderly, handicapped, migrants and displaced persons. Only two criteria had a slight different idea among them. These were occupational equipment loss (gill net and gear) and death of household head.

4.5 Community Problems and Needs

Among the affected communities, common problems were identified. Major problems were obviously related to livelihood aspects, particularly lack of capital, fishery and other occupations (see Table 10). Major problems identified by all villages were lack of capital for investment (revolving fund), lack of occupational equipment (fishery and other needed for various occupational groups), no supplementary occupation, limited technical knowledge/skill for new occupation, lack of fishery equipment, low price of aquaculture and fruit trees (for farmers), high cost of fuel and lack of agricultural market (crops, fruit trees and fisheries). Other identified problems consisted of poor condition of village road(s) or narrow roads and inadequate assistance or social welfare to disadvantaged groups (widowers, elderly, orphans, handicapped, migrants and displaced persons).

Problems identified by 4 out of 5 villages were infrastructure issues including lack of day care center for children, no village pavilion or community hall, no furniture and facilities in the meeting room, religious school or multi-purpose building, and lack of drinking and domestic water.

The problems identified in about half of the villages (3 villages) included insufficient public lights particularly along the village road and no natural wall to reduce the velocity of the tsunami. Those problems ranked by only a few communities (2 villages) consisted of an inadequate pier, lack of land title, insufficient water containers to store water, no public latrines, lack of a community reading center/library, no village sports stadium, poor water drainage systems, destruction of coral reefs, degradation of mangrove forests, lack of an English teacher, stress (after tsunami), and sea debris.

There were a diversity of other problems pointed out in a very low frequency (only 1 village) by the villages. These included; unorganized boat parking, shallow canals and poor water drainage systems (although this was listed as an impact by most communities),

no community (commercial) bank, lack of bridges to connect community settlements, no inter-village bridge for evacuation purposes, lack of an evacuation place for tsunami warnings, poor solid waste management/no community incinerator, inadequate community trash bin, no community vehicle for solid waste collection, problems with the national park (unclear boundary), lack of toys and facilities for school children, no catering place for community hall/gathering, no signboard indicating village road and name of existing organizations in the village, no kitchen utensils for the community hall, decrease of aquatic resources, beach erosion due to waves, inadequate eco-tourism, lack of awareness in household sanitation and environment, unclean drinking water, discontinuation of village development funds, low level of unity in the community, no transparency in implementation of existing village revolving fund, lack of public care for common property, lack of scholarship for pupils, frequent shifting of local groups leading to poor group strengthening, drug addiction among youngsters, inadequate welfare for Muslim teachers, inadequate community (village/Tambon market), poor telephone communication (no cell phone) signal, ineffective use of village broadcasting tower, no village broadcasting tower, timely flood (in front of religious school), inadequate electricity, insufficient boat dock (medium and small scales), and ocean phobia.

In sum, the major problems identified in common by villagers of the affected communities were related to livelihood aspects and supporting mechanism (capital or revolving fund, technical knowledge or training, occupation, equipment and marketing), infrastructure, social welfare for vulnerable groups and water supply.

In response to the mentioned community problems, Table 11 shows a list of common needs in the tsunami affected villages. The community needs are classified into four major areas: (1) economic, (2) infrastructure, (3) natural resources and environment and (3) social and institutional sectors. Overall, community needs identified by all villages included: economic, infrastructure and social aspects. They were: capital for investment (revolving fund), occupational equipment (fishery and other) supplementary occupation, technical knowledge/skill for new occupation, upgrading village road(s)/narrowed road, household water container, dredging canals and water drainage system and social welfare to disadvantaged groups (widowers, elderly, orphans, handicapped, migrants and displaced persons),

Community needs identified in 4 of the 5 villages were fishery equipment, expansion of permanent house and a village sport stadium. The needs with a moderate frequency distribution (3 villages) were in infrastructure and natural resources and environmental sectors comprising of evacuation area for tidal wave, agricultural market (crops, fruit trees and fisheries), village broadcasting tower/more effective for the existing one, village reading center/library, village multi-purpose building, public lights/electricity, reforestation of mangrove forest, construction of embankment to protect erosion from tsunami and promotion of eco-tourism/local tourist center.

Those with a relatively low frequency included infrastructure and others comprising of a village security guard booth, village pavilion, day care center for children, catering building/facilities for mosque, village water supply, furniture (desks and tables) and facility (fans) in a meeting room or in religious school or multi-purpose building, public latrine, solid waste management, community trash bins, natural sea wall to reduce velocity of tsunamis (pine trees), surveying of coral reef, scholarship for pupils and

Table 10: List of Common Problems in the Tsunami Affected Villages

Problems	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Lack of capital for investment (revolving fund)	X	X	X	X	X	5
Lack of occupational equipment (fishery and other)	X	X	X	X	X	5
No supplementary occupation	X	X	X	X	X	5
Limited technical knowledge/skill for new occupation	X	X	X	X	X	5
Lack of fishery equipment	X	X	X	X	X	5
Low price of aquaculture/fruit trees	X	X	X	X	X	5
High cost of fuel	X	X	X	X	X	5
Poor condition of village road(s)/narrowed road	X	X	X	X	X	5
Lack of agricultural market (crops, fruit trees and fisheries)	X	X	X	X	X	5
Inadequate assistance/social welfare to disadvantaged groups (widowers, elderly, orphans and handicapped)	X	X	X	X	X	5
Lack of day care center for children	X		X	X	X	4
Lack of drinking and domestic water	X	X		X	X	4
No furniture and facility in a meeting room/religious school/multi-purpose building	X	X	X	X		4
No village pavilion/community hall	X	X	X	X		4
Insufficient public lights	X	X			X	3
No natural wall (to reduce velocity of tsunamis)	X	X			X	3
Inadequate pier				X	X	2
Lack of land title	X	X				2
Lack of communication for fishery purpose				X	X	2
Insufficient water container to store water	X	X				2
No public latrine	X			X		2
Lack of community reading center/library	X		X			2
No village sport stadium	X		X			2
Poor water drainage system	X		X			2
Destruction of coral reef		X		X		2
Degradation of mangrove forest		X			X	2
Lack of English teacher		X		X		2
Stress (after tsunami)		X		X		2

Problems	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Sea debris		X		X		2
Unorganized boat parking				X		1
Shallow canals and poor water drainage system			X			1
No community (commercial) bank			X			1
Lack of bridge to connect community settlements				X		1
No inter-village bridge for evacuation purpose					X	1
Lack of evacuation place for tidal wave					X	1
Poor solid waste management/No community incinerator			X			1
Inadequate community trash bin				X	X	1
No community vehicle for solid waste collection	X					1
Problems with the national park		X				1
Lack of toys and facilities for school children			X			1
No catering place for community hall/gathering			X			1
No signboard indicating village road and name of existing organizations in the village			X			1
No kitchen utensils for community hall						
Decrease of aquatic resources		X				1
Bank erosion due to wave					X	1
Inadequate eco-tourism				X		1
Lack of awareness in household sanitation and environment				X		1
Unclean drinking water			X			1
Discontinuation of village development fund			X			1
Low level of unity in community			X			1
No transparency in implementation of existing village revolving fund			X			1
Lack of public care for common property			X			1
Lack of scholarship for pupils			X			1
Frequent shifting of local groups leading to poor group strengthening			X			1
Drug addiction among youngsters			X			1
Inadequate welfare for Muslim teachers	X					1
Inadequate community (village/Tambon market)			X			1
Poor telephone communication (no cell phone)signal	X					1

Problems	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Ineffective use of village broadcasting tower			X			1
No village broadcasting tower				X		1
Timely flood (in front of religious school)				X		1
Inadequate electricity				X		1
Insufficient boat dock (medium and small scales)					X	1
Ocean phobia		X				1

Table 11: List of Common Needs in the Tsunami Affected Villages

Needs	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
I. Economic Sector						
Capital for investment(revolving fund)	X	X	X	X	X	5
Occupational equipment (fishery and other)	X	X	X	X	X	5
Supplementary occupation	X	X	X	X	X	5
Technical knowledge/skill for new occupation	X	X	X	X	X	5
Fishery equipment	X	X		X	X	4
Reconstruction of vendors near the beach (Phrapart beach)		X				1
II. Infrastructure Sector						
Upgrading village road(s)/Narrowed road	X	X	X	X	X	5
Household water container	X	X	X	X	X	5
Dredging canals and water drainage system	X	X	X	X	X	5
Expansion of permanent house	X	X	X		X	4
Village sport stadium	X	X	X		X	4
Evacuation area for tidal wave		X			X	3
Agricultural market (crops, fruit trees and fisheries)	X	X	X			3
Village broadcasting tower/more effective for the existing one		X	X	X		3
Village reading center/library	X		X	X		3
Village multi-purpose building		X	X	X		3
Public lights/Electricity	X			X	X	3
Village security guard booth	X		X			2
Village pavilion	X			X		2
Day care center for children	X		X			2
Catering building/facilities for mosque	X		X			2
Village water supply	X	X				2
Furniture (desks and tables) and facility (fans) in a meeting room or in religious school or multi-purpose building		X	X			2
Public latrine	X			X		2
Toys and facilities for school children			X			1
Kitchen utensils for mosque	X					1
Signboard indicating village road and name of existing organizations			X			1
Commercial bank in community			X			1
Bridge to connect village settlements				X		1

Needs	Village 1	Village 2	Village 3	Village 4	Village 7	Frequency
Inter-village bridge for evacuation purpose						
Skill training center			X			1
Filling up land (mosque and religious school)				X		1
Pier					X	1
Mosque/Religious school		X				1
Drinking and domestic water supply			X			1
Community (village/Tambon) market			X			1
Telephone connection (signal for cell phone)	X					1
Land title	X					1
Early warning system		X				1
III. Natural Resources and Environment						
Reforestation of mangrove forest		X		X	X	3
Construction of embankment to protect erosion from tsunami	X	X			X	3
Promotion of eco-tourism/Local tourist center	X	X			X	3
Solid waste management			X	X		2
Community Trash bin		X		X		2
Natural wall to reduce velocity of tidal wave (pine trees)	X	X				2
Surveying of coral reef		X		X		2
Water drainage system				X		1
Vehicle for solid waste collection	X					1
Rehabilitation of natural resources		X				1
IV. Social and Institutional Sector						
Social welfare to disadvantaged groups (widowers, elderly, orphans and handicapped)	X	X	X	X	X	5
Scholarship for pupils	X		X			2
English teachers for school children		X		X		2
Clean drinking water			X			1
Continuation of village development fund			X			1
Low level of unity in community			X			1
Information dissemination and transparency in the implementation of existing revolving fund in the village			X			1
Awareness and public care for common property			X			1
Occupational security among the youth			X			1
Compensation on welfare for Muslim teachers	X					1

English teachers for school children. There were many diversified needs expressed by an individual village in all four sectors including: reconstruction of vendor sheds near the beach (Prapas beach), toys and facilities for school children, kitchen utensils for mosque, signboard indicating village road and name of existing organizations available in the village, commercial bank in the community, bridge to connect village settlements, inter-village bridge for evacuation purposes, skill training center, filling up land (mosque and religious school), pier, mosque/religious school, drinking and domestic water supply, community (village/Tambon) market, telephone connection (signal for cell phone), land title, early warning system, water drainage system, vehicle for solid waste collection, rehabilitation of natural resources, clean drinking water, continuation of village development fund, low level of unity in the community, information dissemination and transparency in the implementation of existing revolving fund in the village, awareness and public care for common property, occupational security among the youth, and compensation on welfare for Muslim teachers.

The synthesis of the community needs of all affected villages is consistent with the identification of community problems presented earlier showing the great demand in these communities for livelihoods recovery and supporting facilities sufficient for them to restart their main and supplementary occupations. Other consistent community needs are road improvements, water supply, dredging canals and channels that are important for the fishery and agriculture. Another important issue was social welfare for disadvantaged groups due to the fact that short-term assistance provided to this group will end soon and they need to sustain their living in difficult circumstances due to the loss of family members who previously provided a living. Based on the findings from this synthesis of the community problems and needs outlined above, specific development strategies for rehabilitation of livelihoods, infrastructure, natural resources and environment and social aspects should be explored accordingly.

4.6 Livelihoods

There are 27 proposed livelihoods projects/activities by fisher, agriculture and women's groups derived from the PRA outputs (Table 12). The proposed list contains traditional livelihoods (before tsunami) and new (after the tsunami) livelihood activities based on the PRA outputs. All new activities were exclusively proposed by the women's group comprising of dress-making, herbal soap-making, bakery, cashew nut processing, barbers/hair dressers, making Muslim hair dress, batik making and steamed mackerel. Many ideas of these activities came from Labor and C.D. Departments, BAAC and an NGO (Northern Andaman Tsunami Relief particularly from village 1), which have been training women in these areas after the tsunami, but they have provided limited capital and feel they still need additional knowledge to really develop these activities.

Common activities proposed in all communities are fish cage culture and green mussel aquaculture for the fishery groups; cow and goat raising of agricultural groups; supplementary occupations (any kind), as well as batik making and trap making of women's groups. For agricultural groups, freshwater fish culture (cat fish and tilapia) and frog culture were identified in village 7 as farmers there have been practicing these activities before and feel there is no problem in marketing these products.

Regarding women's groups, the proposed activities are quite diverse as they now are very aware of the need to have primary and/or secondary occupations particularly among

housewives of fishermen who had no occupation before the tsunami. Women of villages 2, 3, 4 and 7 were interested in seafood products and processing due to their existing indigenous skill in fishery products as shown the high percentages of the population engaging in fishing in those communities, accounting for 60%, 60%, 80% and 90% of the population respectively (see PRA outputs in Section 3). Their proposed activities include steam mackerel (village 2), shrimp paste (village 3), crab processing, net making, fish sauce and shrimp paste (village 4), dried squid, salted and sweetened fish (village 7).

Table 12: Synthesis of Proposed Livelihoods Projects by Occupational Group

Occupational Group	Activity/Project	Village
Fishery Group	- Fish cage aquaculture	All villages
	- Green mussel aquaculture	
Agricultural Group	- Cow raising	All villages
	- Goat raising	
	- Freshwater fish culture	Village 7
	- Frog raising	
Women's Group	- Supplementary occupation	All villages
	- Crab processing	Village 4
	- Net-making	Village 7
	- Dress-making	
	- Herbal soap-making	Village 1
	- Cashew nut processing	Villages 1, 3 and 7
	- Bakery	
	- Barbers/Hair-dressers	
	- Making Muslim head dress	Village 4
	- Trading (garments, grocery)	Village 3, Village 4
	- Batik	All villages
	- Steam mackerel	Village 2
	- Shrimp chip	Village 3
	- Fish sauce, shrimp paste	Village 4
	- Dried squid	Village 7
	- Salted fish, sweeten fish	
	- Banana processing	Village 3
	- Chili paste (shrimp chili paste)	
	- Liquid dish soap making	Villages 3 and 7
- Trap-making	All villages	
Trading	- Garments and grocery	Village 3, 4 and 7

For other products, cashew nut processing was identified by village 1 due to its abundance in this community. Other food processing activities comprised of a bakery for villages 1, 3 and 7 and banana processing and shrimp chips from village 3. Other activities include the following: making Muslim hair dress (village 4), dress-making (village 7), barbers/hair dressers and liquid dish soap making (villages 3 and 7). For trading groups, female traders of villages 3, 4 and 7 proposed to run their business on garments and grocery stores.

In sum, the livelihoods promotion activities of the affected communities in this area are based on the needs of different occupational groups and villages. They are focused on

aquaculture for the fishery groups, livestock raising and fish and frog raising for farmers of the agricultural groups, seafood and food processing, dress-making and embroidery for women's groups. Thus, these are potential activities to be promoted for livelihood recovery and promotion for either primary or secondary occupations of members of the affected communities.

4.7 Infrastructure

There are many types of infrastructure needs have already been presented in earlier sections. Based on a list of the community needs as summarized in Table 11, villagers were asked to identify simple projects the community that could be implement rather quickly. There is a clear difference in priorities given in each of the five villages as indicated in Table 13.

Table 13: Priority Infrastructure Needs of the Tsunami Affected Villages

Priority	Needs	No. of Votes
Village 1		
1	Road construction to village mosque	30
2	Community kitchen (for preparing food for community activities)	28
3	Build and/or improve public latrine (in community hall)	24
4	Household water tank (to store water)	22
5	Village water supply (piped system)	17
6	Public kitchen utensils (for mosque)	16
6	Upgrade road condition (accessible to agricultural and shrimp pond areas)	16
7	Community reading center/library	8
Village 2		
1	Tables and chairs for children (of day-care/pre-school center)	32
2	Build natural wall (mangroves and pipe trees) to protect tidal wave	30
3	Village broadcasting tower	27
4	Rehabilitation for natural resources	24
5	Improve village road condition	21
6	Household water container	16
Village 3		
1	Household water container	53
2	Tables, chairs, fans for a village meeting hall	44
3	Community kitchen (near village mosque)	42
4	Community market (to be served as a sub-district market)	39
5	Occupational equipment	35
6	Occupational training center for women, housewife, and youth	33
7	Water drainage system (in front of village market)	19
8	Signpost showing the direction, name of local roads and organizations	15
Village 4		
1	Ground leveling in front of the village religious school	43
2	Household water container	38
3	Road expansion (Soi Tha Khang)	36
3	Community hall	36
4	Village broadcasting tower	33
5	Toilets, tables, chairs, and other facilities for religious school	28
6	Village reading center/library	12
Village 7		
1	Public lights/electricity	57
2	Embankment for erosion control	50
3	Upgrade village road condition	36
4	Dredging canals, creeks and channels	35
5	Public park	21
6	Household water container	20

The common need of all villages is for household water containers as the villages have poor village water supply systems both for drinking and domestic consumption. Lack of fresh water supply is the main problem in this area although there is regular rainfall for a period of eight months from May to December in Ranong province. A supply of household water containers could help people to store water from rainwater catchment to use in their households throughout the year. Other common prioritized needs in four of the villages is upgrading of village road conditions that were partly damaged by the tsunami and due to the existing poor condition. Additional common needs for two out of the five villages are village broadcasting towers to be used for information dissemination and communication, village reading center/library, furniture (tables and chairs) for a village meeting hall/day-care center, public latrine and community kitchen. Other needs that are not in common but were listed by each individual village included: village water supply (piped system), build natural walls (mangroves and pine trees) to protect from tsunamis, rehabilitation of natural resources, community market (Tambon market), occupational equipment, occupational training center for women, housewives and youths, water drainage systems, signpost showing the direction, name of local roads and organizations, ground leveling in front of the village religious school, public lights/electricity, seawalls for erosion control, dredging canals, creeks and channels and public park.

In conclusion, the infrastructure needed by the affected villages is similar for villages 1 and 4, focusing on infrastructure. Villages 2 and 7 have infrastructure and natural resources development aspects, and village 3 has a combination of infrastructure and occupational development. The common infrastructure needs of all communities are household water container, followed by village road improvement.

4.8 Capacity Building

After the review of the community needs on infrastructure and livelihood activities, most of the infrastructure development can be managed by technical engineers and the public works section of Kam Phuan TAO as the list of proposed infrastructure contains mostly small scale projects. Those that require technical specialization include village water supply systems, rehabilitation of natural resources and dredging canals, creeks and channels. These require technical expertise to look at specific issues relating to environmental impacts and engineering.

Of the livelihoods activities proposed by the occupational groups, many villagers already have indigenous knowledge and existing skills in these areas – such as fish cage culture and green mussel aquaculture, cow and goat raising, fish and frog raising, crab processing, net-making, trap making, trading, and seafood processing such as making fish sauce and shrimp paste, dried squid, salted and sweetened fish and chili paste. Additional training programs are needed in aquaculture and livestock raising.

Community members for some proposed activities have already been provided training (especially to women) both before and after the tsunami by government agencies and NGOs including dress-making (village 7); herbal soap-making and cashew nut processing (village 1), batik (village 3) steamed mackerel (village 2), shrimp chips, banana processing (village 3), liquid dish soap-making (villages 3 and 7), bakery (villages 1, 3 and 7) and furniture making (village 1).

No training has ever been provided for the following activities comprising of barbers/hair dressers, Muslim hair dress-making, batik (for villages 1, 2, 4 and 7). From the PRA meetings, villages 1,2 and 7 have a keen interest to develop eco-tourism in their communities. Thus, capacity building related to tourism including lodging and catering services or food shops for guests should be explored.

Despite the diversified interests of the major occupational groups, based on their proposed activities, basic knowledge and skills training on group organization, financial management, and entrepreneurship are needed.

5. Recommendations

5.1 Coordinated Vision and Plan of Action

The synthesis of both community problems and needs for infrastructure and livelihood development of the affected communities are very much in line with what has been outlined in the TAO 3-Year Development and Strategic Plans (2003-2004) in terms of development strategies and visions of those communities. The findings of the PRA outputs provide updated lists of problems, needs and visions both at the community and occupational group level that could be used to facilitate plan modifications and revisions for the TAO annual action plan for 2006. The rolling plan of the TAO for 2006 could be easily prepared that incorporates PRA outputs of the five affected villages. The PRA findings (problems and needs of community and occupational groups) can be easily restructured to be consistent with the TAO format by breaking them down into respective development sectors consisting of economic, infrastructure, natural resources and environment, and social and institutional aspects. This would then fit nicely with the local plan format. Specific recommendations for the program and TAO are provided below.

5.2 Comprehensive Tsunami Reconstruction and Rehabilitation Plan

The rolling plan should emphasize tsunami affected communities and include comprehensive findings obtained from the PRA activities. We recommend that the TAO prepare a separate tsunami rehabilitation and reconstruction plan that is complimentary to but consistent with their 3-year development plans and annual action plan. It should be integrated together with development action plans for the non-affected communities (see recommendations on plan integration below). They should design specific development strategies as outlined in the local strategic plan by incorporating detailed problems, needs and proposed activities by various occupational groups into respective development strategies. This could serve as a comprehensive tsunami reconstruction and rehabilitation plan of the Tambon. The Plan would be useful in consolidating basic information and recent data generated from the participatory approach with a consensus of local people in their decision-making, primarily on their problems, needs and future actions both for reconstruction, rehabilitation and for a general development scenario.

After the Plan has been prepared, the TAO should make an effort to use it as a mechanism for donor coordination and to obtain specific commitments from various donors and assistance agencies. It can be an instrument to mobilize technical and financial assistance based on development activities identified in the Plan. This will enhance effective collaboration with NGOs, (e.g. CHARM, North Andaman Relief, CARE, Thai Union,

World Vision and ARC) international organizations and private sector donors and individuals to make their contributions integrated into the TAO development framework. They can plan of actions that are clearly spelt out for immediate implementation because target areas, beneficiaries, type of projects and available TAO budget and gaps will have been identified. This could assist the TAO to direct its own local development and empower their capability in relation to participatory planning, management and budgeting.

The rolling plan of the TAO is expected to be revised and reformulated during June-July period based on the annual planning cycle so that the plan could be approved and then followed by the release of government budget in September/October according to the Thai fiscal year cycle. The PRA findings have generated relevant outputs for input into the formulation of the TAO rolling and action plan for 2006 (see the format of the TAO Plan in Appendix 7). It is recommended that PRAs should be conducted annually in those affected communities to update action plans with new information particularly on needs and proposed new projects of community and occupational groups that may change over time.

5.3 Plan Integration

There is some concern of TAO members on general local plan preparation between tsunami affected and non-affected areas as the Tambon Development Plan has to be prepared to cover all villages under its jurisdiction. We recommend that a Local Comprehensive Tsunami Reconstruction and Rehabilitation Plan be used to cover only the five affected villages. Since there are seven villages in this Tambon, this Plan will not include the rest of two non-affected villages (villages 5 and 6). Therefore, the TAO should prepare a typical Tambon Development Plan to cover all seven villages. In this effort, the TAO should conduct a PRA in those two non-affected villages in the same format that has been performed in the five affected villages and then integrate the findings into the Tambon Development Plan. This could facilitate a horizontal integration between the affected and non-affected communities with clear budget line items between the two geographic areas identified in the Plan. The affected communities are expected to get substantial assistance from donor agencies (based on the proposed comprehensive tsunami reconstruction and rehabilitation plan) while the non-affected communities will be primarily supported by the TAO.

5.4 Livelihoods

Out of all the various occupational groups in the affected communities, fishermen have been receiving substantial compensation and replacement of their fishing boats, gear and equipment and therefore are recovering rapidly. Farmers who lost their livestock may need help with replacement as little compensation has flowed in their direction. Salinity affecting coastal agricultural land may also be a longer-term problem that needs to be addressed. Some women are becoming involved in several types of supplementary occupations, especially after attending training provided by various government agencies, NGOs and other. Many women who have never been engaged in any occupation particularly housewives of fishermen are starting to change their attitudes and are becoming more and more interested in starting new occupations but lack knowledge, skills and capital.

We recommend that for promotion of livelihood projects the following criteria should be taken into account. First priority should be those that build on existing indigenous knowledge and skills of local people. In this type, perhaps no technical training is needed as the local people have been launching activities for many years and without any technical complication in those activities. According to Table 12, these comprise of seafood processing activities: crab processing, fish source, shrimp paste, dried squid, salted fish, sweeten fish and chili paste of women's group. The existing skills of women have been derived from their own households, and could make value-added products from the seafood that is an abundant local resource. Thus, these activities should be less risky ventures due to low cost of investment, few new additional skills required, availability of local resources, less marketing problems and rapid economic return. For trading businesses, these traders normally have been in this occupation for many years before the tsunami; hence, they should have no problem if capital is available for them to restart their occupation.

Second priority is related to activities that are supplemental to a primary occupation. In this regard they can use their technical know-how to complement their secondary occupation. An example is aquaculture as a supplemental livelihood opportunity for fishermen. We do know from previous experience however those fishers that may start aquaculture activities may eventually drop these activities and resume full time fishing. Careful assessment of willingness to change or to add occupations among fisher groups that the program supports are needed. Cow and goat raising can be supported because farmers have agricultural land while other occupational groups may not have similar assets, inputs and knowledge for such livestock rearing. This is similar to a trap-making that most of fishermen already know how to make and therefore may also be a good supplemental activity to promote.

Third priority includes on-going livelihood activities where villagers have received technical training and with initial capital support can be expected to start or enlarge their activities, or to increase coverage of additional beneficiaries with the interested groups. Basically, there are many individuals that have been provided assistance after the tsunami by government agencies i.e., Labor and C.D. Department and NGO (North Andaman Tsunami Relief). Their support has ended but with the needed skills and knowledge of members who have learnt about these activities may not yet be sufficient to start up enterprises, or lack capital to do so. These consisted of herbal soap making, dress-making, cashew nut processing, steamed mackerel, shrimp/fish chips, banana processing, bakery and liquid dish soap-making. Additional capital or revolving fund to those groups should be provided to sustain their activities to cover additional members so that their skills and knowledge can be transferred to others.

From the PRA outputs, a few other occupational groups (furniture-making and broom-making from village 2 and traditional herb processing from village 7) are already well-established and participated in a national program promoting local enterprises which is called "one Tambon one product (OTOP)". These OTOP groups did not add their activities to the list of proposed activities during the PRA as those are on-going and not new ventures. However, the program could also support these. The projects in this category promote occupational diversification of inhabitants in the affected communities and would serve as alternative livelihoods for them. In this scenario, their dependency on fishing as a primary occupation could be reduced gradually over time, providing some relief to the overfishing situation. This assumes parallel efforts on limiting effort and

entry into the fishery as part of the co-management efforts. Occupational diversification would also minimize marketing and price fluctuation risks as not the same products are over supplied to a local market, and communities could adjust the mix of productive activities based on prevailing market situations. This also provides insurance during times of drought or poor fishing harvest that vary for natural reasons form year to year.

Fourth priority deals with activities that are new occupations where local people have no prior knowledge, skills and experience. In this category, training must be given to give basic knowledge and skills in the new occupation. From the proposed activities, these include barbers/hair dressers and batik making. The latter was provided as a training session in May for women in village 3. Also villagers in villages 1, 2 and 7 expressed their strong interest to develop eco-tourism in their community although this may take some time to take shape for villages 2 and 7 there is little on-going business activity in this sector at present in this area. Occupations related to the tourism such as local guiding, lodging and catering services for tourists should be explored in future. This will also require technical assistance in marketing analysis and promotion.

Overall, the decision to select potential livelihoods projects should take into account the visions of different occupational groups expressed in the PRA meetings focusing on reducing dependency and risk on primary occupations and promoting occupational diversification for income security and sustainability. Other points that should be considered in funding projects are the availability of indigenous knowledge and existing skill of occupational groups, marketing, rapid economic return, availability of raw materials/local resources, simple technology and possible technical and financial assistance from agencies and donors.

In comparison between the livelihoods activities compiled from the PRA and a proposed list for rehabilitation of occupational groups funded by CHARM in the same Tambon (Appendix 9), it is almost identical. Some are slightly different consisting of eco-tourism, mud crab raising, fishery equipment procurement, assistance to disadvantaged persons, repair of fishing boat and fishing equipment, traditional poultry raising and rehabilitation for tsunami affected households. As for the approved projects of CHARM, all activities are almost similar with the list generated from the PRA except for a few different activities consisting of fishery procurement and repair, and sea guarding.

Lastly, there is substantial interest in the use of revolving funds as a mechanism to capitalize livelihood projects. The government has provided resources for village revolving funds in the past and Thai Cement Co. has also provided capital to start revolving funds. There have been hints that many past programs of this nature have failed. Therefore we need to know more about how successful or not they have been and why as we start to provide revolving funds as well. This should include open discussions with communities and local leaders that these funds are not meant to be handouts or just "blank checks". They are to be given under the condition that they are well planned out, organized and that beneficiaries receive training and technical support that increases the likelihood that they will be successful.

A special note should also be made concerning boat replacement schemes. We have been told that over 200 boats were destroyed during the tsunami although we were unable to check written assessment reports from DoF at the time this report was prepared to better verify these numbers. However, our PRA outputs indicate that 185 vessels have already

been replaced (42 in Village 1, 59 in Village 2, 5 in Village 3, 21 in Village 4, and 58 in Village 7). Since we have committed to an additional 20 boats to be provided by the ARC boatyards we should coordinate with ARC carefully concerning which villages and individuals have already been compensated fully and those still in need. Fishers have expressed concern that many people are providing boats but not necessarily engines, fittings and gear. This may be an area where we can contribute to ensure those fishers affected have full packages of productive equipment to fully resume fishing. We must also be careful not to over compensate and provide more vessels than were originally lost as this will just exacerbate what was thought to be a problem of overfishing prior to the tsunami. Further boat donations through our program and others should be restricted or delayed until we know exactly how many boats were actually lost in each village from the tsunami. This information was not collected during the PRA process.

5.5 Role of Women, Implementation Modality, and Mechanisms for Livelihood Projects

The livelihood recovery and rehabilitation approach for the Tambon should stressed the role of women in household financial management in various occupational groups and of housewives of fishermen. It was very clear from the PRA meetings of their active role in household financial management and their participation with spouses in many livelihood activities. There also seems to be a high degree of aspiration among women to become involved in their own business ventures. This is a significant changed in the previous attitude to be dependent on male household heads with no role in economic earning (not to be confused with their role in household financial management that has traditionally been strong). Their engagement in new occupational activities would be instrumental to increase gender equality and achieve their expressed vision for greater empowerment in social and economic development.

From the PRA outputs, all occupational groups expressed their needs to have a revolving fund as initial capital to start an activity. This should go along well with the concept of group guarantees of repayment as social collateral, which should be applied to enhance mutual responsibility among group members. These concepts had been used in the area before the tsunami, so there is scope to modify and increase the effectiveness of project implementation (higher repayment or lower default rates) and sustainability of revolving funds in order to enlarge coverage to other members of the group. Women are generally capable in household financial management on their own; therefore, they should be involved in planning and implementation of any household livelihood activity even if the male may be the dominant laborer in a particular activity (e.g. fishing, aquaculture). The concept of the revolving funds and group guarantee as social collateral should be applied in all proposed livelihoods projects for all occupational groups. Details of such implementation mechanism should be worked out, as well as training in group dynamics and bookkeeping provided prior to provision of revolving funds.

For the actual operation of livelihood projects, implementation modality and mechanism for project implementation should be decided. There was a discussion during this mission as to what should be the best model implemented by various donors in this area. From the PRA synthesis outputs, we have learned that some donors have already set up revolving funds (villages 1, 2, 3 and 4) for occupational groups. We recommend that the project carefully review and scrutinize existing modalities practiced by various donor agencies including the TAO, line agencies (i.e., C.D. Department on OTOP), NGOs (CHARM,

CARE and Northern Andaman Tsunami Relief) and the private sector (Thai Cement). Strategies that are responsive to the project's desirable outcomes can then be mapped out. This PRA review and synthesis, along with the recommendations should be shared among donors. We should ask them to share lesson learned that could feed into future modifications of approaches. A rapid assessment of the possible implementation mechanisms and modalities of those livelihoods projects mentioned above should be immediately conducted by Field Coordinators of the project with assistance of the CVFs. This is to ensure an effective implementation mechanism to be established with a prospect for sustainability of those activities in the long term. In addition, a systematic monitoring and evaluation (M&E) and/or a participatory M&E system should be designed carefully, and be applied for both infrastructure and livelihoods projects assisted by the program.

5.6 Infrastructure

To identify the most appropriate projects for USAID assistance in designing and co-financing of construction, a list of needs for simple projects was identified and ranked by villages (Table 13). Primary consideration should go to projects where there are common needs by all or most of the villages which will simplify implementation. These include household water containers (all villages) and upgrading/expansion of village roads (villages 1,2, 4 and 7). The latter should be supported by a cash-for-work program to generate local employment.

For village 1 other possible projects should be community kitchens (for preparing food for community merit-making and other activities), build and/or improve public latrines (in a community hall), village water supply (piped system), public kitchen utensils (for mosque), upgrade road conditions for particular access to agricultural and shrimp pond areas, and community reading center/library.

For village 2, some early action projects include tables and chairs for children (of day-care/pre-school center), building of natural walls (mangroves and pipe trees) to protect villages from future tsunamis, a village broadcasting tower, and rehabilitation of natural resources. The last two projects should be supported under the cash-for work.

The following projects are recommended for village 3: tables, chairs, and fans for a village meeting hall, community kitchen (near village mosque), community market/sub-district market (proposing co-financing with TAO and provincial authority), occupational equipment, and occupational training center for women, housewives, and youth, and signposts showing the direction, name of local roads and organizations.

For village 4, these are ground leveling in front of the village religious school (under cash-for work), community hall, village broadcasting tower, toilets, tables, chairs, and other facilities for the religious school and village reading center/library.

Lastly, village 7 has the following three identified projects comprising of public lights, embankment/seawall for erosion control (under cash-for-work), and a public park.

Associated with the summary list of infrastructure projects proposed to the Ministry of Interior (MOI) by Tambon Kham Puan recently in May 2005 (Appendix 8), three projects are found identical with the priority projects identified by affected villages. These are

embankment (at 3 meters elevation with the total length of 185 meters and a total estimated cost of 9,580,000 Baht) and dredging Khao Nui canal (15 meters at 1.5 meter depth with the length of 800 meters and a total estimated cost of 739,481 Baht); both are from village 7. The other one is for village 1 on a medium sized water supply system and a total estimated cost of 2,000,000 Baht). In this case, if the TAO proposed projects have been endorsed by the MOI, those three identical projects from villages 7 and 1 should be taken out from the USAID list unless the approved budget is not adequate for the project implementation. In that respect, a co-financing scheme may be considered. IN all cases, assistance with design to minimize environmental impacts is highly recommended, especially given the sensitive nature of the coastal environment and the location siting of many of these proposed activities inside the boundaries of the national park.

5.7 Capacity Building

The following capacity building programs should be provided to strengthen the capacity of key stakeholders involved in project implementation, which is mentioned hereunder.

CVFs

Due to a variety of educational backgrounds, skills and development work experience of CVFs, their capacity building should be focused on intensive training on basic computer usage, facilitation, presentation and reporting skills. On development aspects, they should learn more on community development concepts and practices including people's participation, social mobilization, self-reliance, micro-finance, community-based organizations and project planning and management.

The CVFs should be trained on a simple survey method to assist in compiling required information once the project is moving ahead and where much information is needed on the ground. They should be capable in handling records, inventory and simple data processing to render their help in information gathering when needed (e.g. a census on assistance provided after the tsunami and to assist in a project data base entry). The PRA techniques should be reinforced together with additional concepts on participatory approach and methods, project implementation and participatory monitoring and evaluation (PM&E).

There are three CVFs who have obtained a bachelor degree in fisheries, agriculture and marketing. Two of them have obtained their advance certificate in political science and computer science. Therefore, the five of them should be capable to assist in several jobs of the project if advance technical training and inputs are given. The other CVFs who have relatively lower education showed great talent and ability during the PRA exercises. Their capacity can be significantly improved if the above mentioned areas as a component of their human resource development. The CVFs have been very helpful and they should continue their facilitating roles to assist in the implementation of rehabilitation activities of the program.

Occupational Groups

Different occupational groups should receive different kinds of technical training and practices suitable for their proposed livelihood activities to increase their knowledge and know-how. The fish cage and green mussel culture, fish and frog raising groups should be

trained by the DoF and AIT on technical issues. The goat and cow raising should receive technical assistance from Livestock Department. For food and fruit processing and embroidery and other income generating activities they should gain significant technical support from the Labor, C. D. and Non-formal Education Departments and BAAC on resource persons. The Industrial Promotion of Ministry of Industry could assist in designing local products and packaging, which could be performed under an umbrella of the OTOP of a national program in this area. The Ministry of Trade and Commerce can help in providing technical training in marketing with an e-commerce business once several products have been expanded and improved their quality to meet with local or national standards.

For the eco-tourism group, a capacity building program on tourism should be considered and planned in advance for activities such as local guiding, lodging and catering services for tourists. Assistance could be requested to the Tourist Authority of Thailand (TAT) for technical training and assistance in the long run.

For all occupational groups, basic concepts and practices on group organization, project and financial management, accounting and record keeping, marketing (for women's group), preparing a project report and simple project proposals, and participatory M&E should be common training areas. Those are important to increase their entrepreneurial skills.

TAO Members and Officials

The TAO is the main local government institution that oversees overall implementation and coordination of rehabilitation in the area. The implementation of a tsunami rehabilitation plan and projects are new experiences for TAO members and officials. Therefore, it is essential to provide training to enhance their planning, coordination and management skills. The TAO Deputy Officer is the civil servant and primarily in charge of drafting local plans (3-Year Development and Strategic Plans). He should play a key role in the formulation and integration of program activities and plans, and should be the key liaison and focal person to supervise other TAO members. Planning techniques for both horizontal (projects of non-affected communities with government line agencies, other donors and USAID) and vertical (district and provincial authorities and the decentralized Provincial Administrative Organization or PAO) integration should be efficiently enhanced to enable them to consolidate and integrate several other projects identified by those development agencies into a local comprehensive tsunami reconstruction and rehabilitation plan as discussed earlier. This could accelerate the implementation of various rehabilitation projects of many donors in the area once clarity of a local plan's formulation and execution of the local rehabilitation plan is made.

Another area of the capacity development for TAO members and officials is coordination and M&E skills because many projects have to be coordinated during the rehabilitation period. Thus, a systematic M&E system should be clearly designed and performance indicators identified.

Another aspect that is of great importance for the TAO is the concept and practices of good governance. This is to strengthen the skills and understanding in public participation, value of money, accountability and transparency in the implementation of

the Comprehensive Tsunami Reconstruction and Rehabilitation Plan of the Tambon, which will empower their capability as a key local government unit of the area.

5.8 Project Management and Coordination

As this was the first external technical assistance activity of the project, several useful observations and recommendations can be drawn from this experience regarding project management and coordination. It is important to note that this activity was undertaken only two weeks after the Field Coordinators arrived on-site and before office facilities had been set up. Since systems are still being put in place it is understandable that there will be some degree of uncertainty concerning roles at this stage. However, we do feel it is useful to make a few suggestions based on our impressions.

Coordination with TAO staff, TAO Village Representatives and Village Headmen: Close coordination of project activities with the TAO staff and village representatives will be essential for the success of this project. At this stage, it is not fully clear to us what the appropriate channels of communication are and to whom between the Field Coordinators and the TAO staff. We had a number of discussions directly with the TAO Chairman, office staff and several representatives from a few of the tsunami-affected villages. Clarification and definition is needed of how coordination should be conducted between Project Staff and TAO staff. It is also important to clarify the role of the TAO secretary (also known as the "TAO Deputy Officer", a civil servant appointed by the Ministry of Interior to assist the TAO primarily in plan formulation and implementation). If we decide to assist the TAO in developing a comprehensive tsunami rehabilitation and reconstruction plan, (and as we move into disaster planning and mitigation strategies, early warning systems and evacuation plans) this individual and other full time TAO staff will need to play a very important role. At the village level, it also become very clear to us the importance of working with both the village headmen as well as the TAO representatives when conducting activities at the village level. Hence, close coordination with village officials is also needed. There was some confusion initially concerning the roles of the CVFs as we started the PRA process Vis-a-Vis the headman and village TAO representatives. We believe this issue has now been addressed but it should be monitored carefully.

Role of CVFs: As mentioned above, there was some initial confusion within the TAO and among village leaders as to the role of the CVFs. They are not meant to be a competing governance structure to existing institutions and are seen as assistants to implementing program activities in the village. The CVFs also need to make sure that they coordinate closely with village leaders – keep them informed of all program activities and engaged in decision making. These relationships – between CVFs, Field Coordinators and Village Officials should be monitored closely in the early phase to ensure that any continuing issues or unclarity as to roles gets resolved quickly.

Role of Coordinators: The Field Coordinators are the main engines for implementation of project activities. They have started out their work with great enthusiasm and energy as exhibited by the effort they put forward during the PRA process. They are working long hours and with very few days off (working through almost every weekend at present). They have also been trying to organize their own suitable housing arrangements while running at full speed to coordinate start-up project activities. At some point they will need to slow down, as their current pace is unsustainable. The nature of such community

development work is different than a normal 5-day a week job from 9-5, and it often requires unusual hours and work on weekends. However, they need a few days off from time to time and this needs to be encouraged. We also recommend that they try to find housing in closer proximity to the project site – their current housing is about 45 minutes North of the office. Public transport for commuting in this area is not frequent. Lastly, there are two field coordinators on site and it is not clear what their decision making authority is nor what are the respective roles between them. This likely may also be creating confusion among counterparts within the TAO. Greater clarity of their roles and the differences between them is needed.

Coordinated Planning and Indicative Budget Sharing: We observed a meeting facilitated by the District Community Development Office for the CHARM Project where a list of proposed project activities was generated. They produced a list of proposed activities that totaled more than 40 million Baht. However, the CHARM project had only 3 million Baht to support these activities. We had a sense that unrealistic expectations were created about the level of assistance that was to be provided by the project. We need to avoid a similar situation. We recommend that the actual direct costs that will be provided to the TAO with respect to cash-for-work, livelihood and infrastructure and local training be shared with TAO officials. In addition, we recommend that the project work closely with the TAO during our annual work planning processes and coordinate or synchronize this process with their own annual budgeting and work planning processes.

Role of Technical Assistance: We were the first external technical assistance team to work at the field site and the field coordinators were learning what sort of support services and coordination is needed during such visits. Close coordination and involvement of the field coordinators with the technical assistance team is needed to ensure maximum benefit of these missions. Technical assistance teams should be briefed on what services will be provided by the field coordinators. This includes coordination of all logistical support while the team is at the field site as well as involvement in the substance of these visits. Field Coordinators must be involved with the TA activities to ensure transfer of expert knowledge, to understand key recommendations that are being provided, and to build their capability to conduct the essential follow through needed after the external team departs. Equally important is an understanding on the part of the technical assistance teams of the multifaceted roles the field coordinators play and the other task demands and responsibilities that are placed on their shoulders. Therefore, the technical assistance work and required involvement of the field coordinators need to be carefully planned with other project activities and the timing of such visits is sequenced properly.

5.9 Information Gaps and Additional Information Needs

It became very clear to us during the PRA activities that there is a considerable amount of information available concerning tsunami impacts as well as about what other donors are doing and what assistance is and already has been provided. The challenge however is that this information does not seem to be collated in any one place. Therefore a considerable amount of time and effort is required to find it. This information is important to ensure that assistance being provided to various communities and individuals is distributed equitably and fairly. We also need to ensure that assistance provided by the program is not duplicative of what others have already provided (as for instance the hints that some communities may have received compensation for considerably more boats

than were lost or damaged from the tsunami). It is likely that this situation is not isolated to our program site but a widespread phenomenon. We recommend that a Tambon level information center and comprehensive database of information be established with support by our program. This should not be an overly complex system or necessarily a computer-based system. This sort of record keeping is what should be part of a disaster preparedness plan that includes guidelines of how and what sort of information is collected immediately following the disaster as well as during the rehabilitation and reconstruction phase. Such information should be readily available to any donor or government department providing assistance to this Tambon. It will need to be updated periodically to stay current with ongoing assistance initiatives. It would greatly increase efficiency of coordination and complementarity of assistance provided. An example of some of the basic types of information that should be in such a database for household level impacts is provided in Appendix 12. Additional information should be kept on community-wide impacts especially infrastructure destruction, damage and reconstruction. Tambon Kam Phuan has prepared some reports (see Table 2: List of Secondary Data Available in Section 3) that attempt to summarize tsunami impacts and reconstruction undertaken, but again, these reports are not as comprehensive as they could be.

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