



**The Ecology and Environment
of Bahn Nahm Khem
Three Years after the Tsunami**

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Tsunami Aid Watch is a programme of the Southeast Asia Regional Office of Heinrich Böll Foundation, in co-operation with Southeast Asia Consult and Resource Co., Ltd.

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Tsunami

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Krabi Declaration on Sustainable Post-Tsunami Rehabilitation

The participants of the forum would like to extend their gratitude and heartfelt thanks to all individuals, communities, national and international groups, parties and organizations for the help and aid they have provided for the individuals and communities affected by the tsunami of December 26th 2004. We hope that they will continue to give us unwavering support during the remaining task of long-term rehabilitation. The tsunami has left Indonesia, Sri Lanka, India, Thailand, the Maldives and other countries with devastated coasts, shattered communities, economies and hundreds of thousands of people in need of support. This destruction was, however, only the initial direct impact of the tsunami disaster. The ensuing aid efforts were part of just the first phase of tsunami rehabilitation.

Nine months have now passed since the tsunami and in most affected areas treatment has been delivered to the wounded and basic shelter is available for the surviving victims; in many cases the boats and fishing gear needed for livelihood restoration of the fisher folk have been provided; the remaining tasks are ready to be overseen by restored community structures and local administrations. The situation can, thus, in most instances be described as approaching stability. However, it is a far cry from being normal.

The tsunami recovery now enters a second phase of transformation that is the recovery from a disaster into a more permanent and functioning economic and social set-up, i.e. the mitigation of the secondary tsunami impact. While the aid to rehabilitate from the initial direct impact of the tsunami was characterized by speed and efficiency, the recovery support effort needed for the indirect impact recovery must strive for long-term effectiveness and sustainability. Taking into account livelihood, economic recovery, disaster management, issues of land and housing for the displaced, the landless, women, children, gender issues as well as migrant labor problems. In order to achieve this, a number of measures are urgently needed. Based on past aid delivery experience we therefore ask the international community and supporting NGO's and GO's to mobilize all available resources to:

- Ensure that the long-term rehabilitation of the tsunami affected area is based on definitions of fairness, justice, sustainability and stability as perceived and defined by the tsunami affected communities and individuals;
- Develop the secondary tsunami recovery support into an opportunity to address and solve pre-tsunami problems that have been worsened and/or exposed by the disaster;
- Deliver assistance and support in an accountable and transparent form that ensures participation of those affected in planning, implementation and execution of long-term rehabilitation programs;
- Establish – a vitally important point - a proper, honest and forward-looking information system and data-base on the tsunami disaster for the use and to the benefit of its affected individuals and communities, independent of nationality, race or religion;
- Initiate an aid-tracking system / mechanism to avoid the misuse of aid-resources or its appropriation for something other than aid purposes;
- Ensure that the remaining rehabilitation becomes a stepping stone for further development of the affected areas leading to better conditions than before the tsunami disaster.

If the international community, governments and civil societies help to continue with the tsunami recovery support based on the conditions given above, the tsunami disaster itself can be turned into an opportunity for development that is in line with sustainability needs and economic progress of all mankind. We believe in the strength of cooperation, coordination, openness and solidarity in times of need.

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Acronyms

BAAC	Bank of Agriculture and Agricultural Cooperatives
DASTA	Designated Areas for Sustainable Tourism Administration
SAN	Save Andaman Network
SEA-C.R.	Southeast Asia Consultant & Resource Co., Ltd.
TAW	Tsunami Aid Watch

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Preface I

This publication begins by presenting to the reader the environmental impact wrought by the Tsunami of 2004 on the community of Bahn Nam Khem in Phang Nga province/Southern Thailand. It documents the changes made to the local ecology, its corals, mangrove forests, the offshore sand bar and beaches.

But to get a clearer picture of the challenges faced by the villagers with regard to their natural resource base, man-made factors that have come into play after the disaster also need to be taken into account: the impact of the aid influx and the accompanying government policies. As this report indicates, their effects of each have been highly problematic, both for the villagers and their environment.

This study brings up several issues that have featured prominently on the Heinrich Böll Foundation's agenda in the past couple of years: protection of the environment, a bottom up-approach to natural resource management which stresses local knowledge and capacity, monitoring of public policies and their impact, and people's democratic participation for sustainable development.

To analyze and bring into the rehabilitation discussion some of the issues that have arisen during the long-term Tsunami reconstruction process and to link them to the broader development process in the affected areas, has been one of the main objectives of the Tsunami Aid Watch program (TAW) of the Heinrich Böll Foundation's Southeast Asia Regional Office. It has been at the heart of the TAW concept to do this by providing a stage for the views articulated by the affected local communities to be heard.

The Heinrich Böll Foundation wishes to thank the authors Karl Segschneider, Thiwawan Chaikao and Romlee Maeroh for their work and hopes that readers will gain a new perspective on these Tsunami-related issues.

February 8th, 2008

Dr. Heike Löschmann

Director of the Southeast Asia Regional Office of Heinrich Böll Foundation

Preface II

Since the Tsunami struck the coastal provinces in the south of Thailand, the environment and ecology have changed dramatically; not only because of the Tsunami disaster, but often enough due to human interference in nature's own restorative efforts. While the damaged environment and ecology slowly recovered, aid provision from many sources poured into the affected communities.

In addition, government policies influenced the kind of aid delivered to impacted communities. The policy of issuing title deeds for coastal waters - allowing people to have ownership rights in a certain area of sea basically turned the open ocean into a fence-able (and saleable) piece of water - was launched together with the Andaman Coast Tourism Recovery Project to bolster Tsunami recovery efforts.

This publication tries to give the reader an insight to the effects of these policies and ensuing developments. Certainly they are currently at the center of creating permanent, but not necessarily positive, changes to affected communities and their environments. This publication, thus, scrutinizes the policy of issuing of title deeds on sea banks, threatening access to these resources for the villagers in the future; especially in the area around Bahn Nahm Khem, the most hit-hard area of Phang Nga province.

By presenting its findings, this case study of TAW wishes to strengthen the condition of the stakeholders by using a lessons learnt-perspective from the past Tsunami aid recovery experience.

I wish to thank my two co- authors Thiwawan Chaikao and Romlee Maeroh for all their efforts in producing this book.

February 8th, 2008

Karl H. Segschneider

Director of the Tsunami Aid Watch Programme of Heinrich Böll Foundation

Introduction

After the Tsunami struck the coastal provinces in the south of Thailand, their environments and their ecologies were dramatically changed. This was especially true for the community of Bahn Nahm Khem, the most severely hit area in Phang Nga province. Historically, the community had relied upon natural resources for the industries of mining and fishing. The damage caused by the Tsunami had dramatic and definitive effects upon this community.

A close relationship exists between the coastal communities and their natural resources. Tsunami-affected communities need to rebuild and recover these natural resources as soon as possible. Equipped with new knowledge about their environment and ecology, the communities must develop strategies and timetables for recovery. Strategies must consider what areas of recovery are most effective.

Nature acts as the first key component in the recovery process but nature moves slowly. The community must allow nature time to heal itself and replenish its natural resources. The communities are dependent upon these resources to feed their families and to earn a living.

There has been a huge wave of aid provision delivered to the affected areas. And recovery policies from the government focusing on rehabilitation have also been introduced. These so-called disaster recovery policies often deliver unpleasant results. They are regarded as a sanctioned pathway for more and more developers to come into the affected areas and take what little remains from these communities. This raises questions concerning reduction of natural resources and ecology, diminished traditional livelihoods and local social structures.

This publication focuses on the case study of Bahn Nahm Khem, Tambon Bang Muang, Takua Pa district, Phang Nga province. The book contains two parts. The first section discusses the ecology and the environment of Bahn Nahm Khem before the Tsunami. The second section describes the changes to the ecology, environment and the villagers of the community after the Tsunami. All the information was collected from the community leaders of Bahn Nahm Khem and from local tourism entrepreneurs. Information was also gathered from private and governmental organizations working on communal rehabilitation.

1. Background information

1.1 Bahn Nahm Khem community

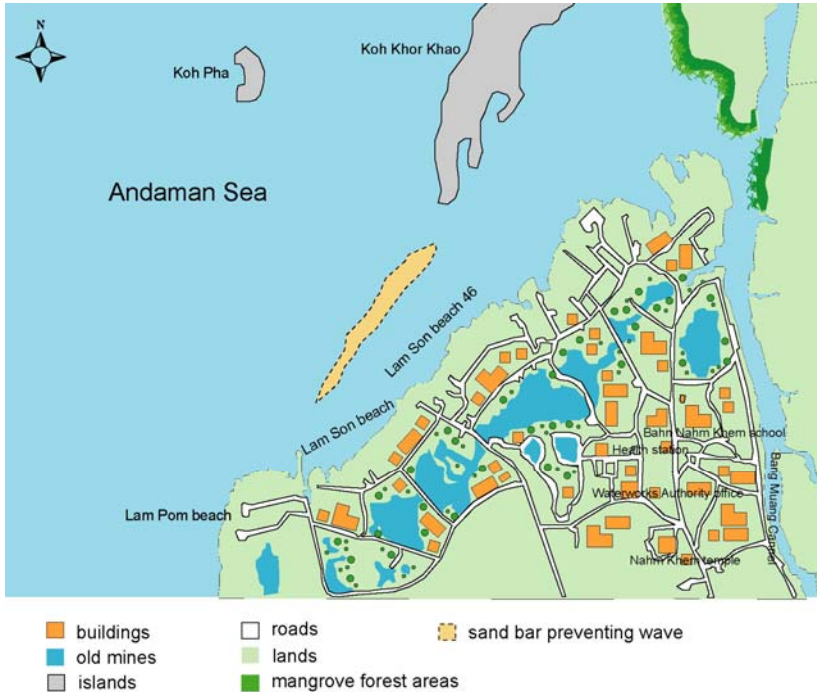
The community of Bahn Nahm Khem, Bang Muang, Takua Pa district in Phang Nga province is located near the mouth of the Bahn Nahm Khem Canal. It is surrounded on three sides by water. There is a plain area by its coastline. There is an elevated area, which is 300 km from the northern coast. The community's central area consists of many old mines. These mines resemble wells and measure ten meters in depth. The width of each mine varies with location.

The North: This community is close to the Pak Koh Canal, which connects to the Andaman Sea by a strait of water. Pak Koh Canal is a historical route connecting the village of Thung Tuaek in Koh Khor Khao and the Thai Bay at Chaiya district, Surat Thani. Pak Koh Canal is also a route connecting Bahn Nahm Khem and Takua Pa district.

The East: This community is close to Bang Muang Canal, which is a branch of the Takua Pa Canal. The water level is shallow due to the collection of sand as a result of past mining operations.

The West: This community is close to the Andaman Sea.

The South: This area is about 300 m from the northern coast. The surrounding area reaches a plateau near the Bahn Nahm Khem School and continues until the end of Phetkasem Road (State Highway Number 4).



Map 1 The area of Bahn Nahm Khem community

This community is close to the water on two sides. The Andaman Sea is to the west while the Pak Koh Canal is to the north. Pak Koh Canal serves as a waterway connection between Koh Khor Khao and the village of Nahm Khem.

Before the Tsunami, a sand bar was to the southwest of Koh Kho Khao. This sand bar was parallel and opposite to the Bahn Nahm Khem coast along the Lam Son beach. The waves were small and not too severe. This allowed the Bahn Nahm Kehm coast to serve as a port for all sizes of fishing boats during all seasons, including the monsoon season.

Most of the Bahn Nahm Kehm villagers were and still are fishermen. Before the Tsunami, there were many small, medium and large fishing boats as well as fishing raft-boats along the coast of Bahn Nahm Khem. The fish caught by the fishermen was consumed by the families and also sold in the community. Some fish was sold to agents who were purchasers for the restaurants, hotels and resorts of Khao Lak and Phuket.

Bahn Nahm Kehm was once an important location for tin mining. Many old mines remain to this day. With the decline of the tin mining industry, the community turned to fishing for its livelihood. 80 percent of the villagers have been fishermen.

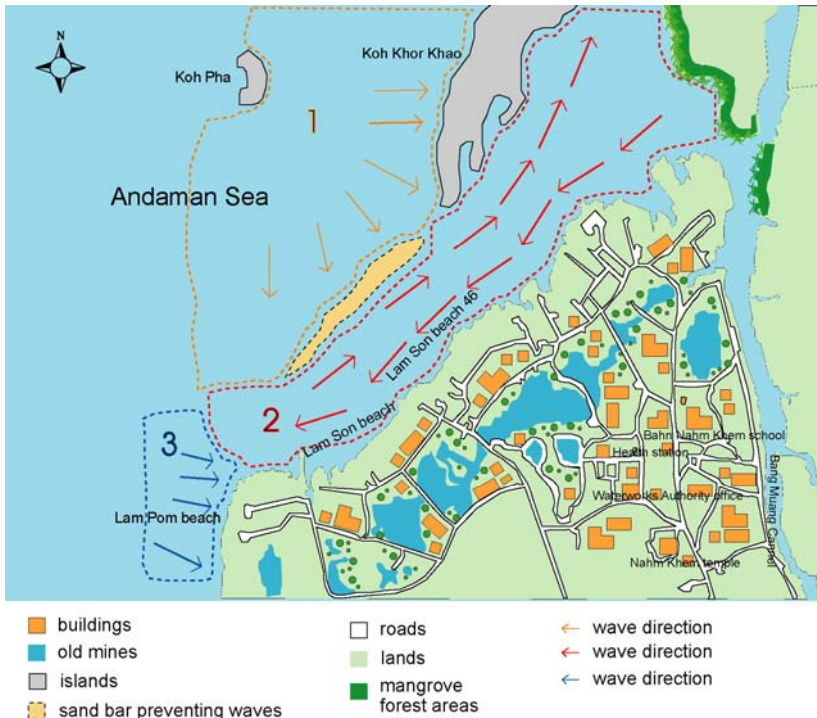
Bahn Nahm Khem community changed from a mining community to a fishing community as a result of two factors. The first factor was the former employees of the mines who remained in the community. When the mining industry closed, they became fishermen. The second factor was the location of Bahn Nahm Khem. It was not far from a major labor market of Burmese fishermen. These fishermen passed through Ranong, arrived in Bahn Nahm Khem and stayed on to work.

Before the Tsunami, there were three beneficial types of sea waves washing against the coast of the Bahn Nahm Khem community:

The first type was large waves from the Andaman Sea that would crash against the western coast of Koh Khor Khao. The sand bar that protruded into the sea from the island protected Pak Koh Canal and the Bahn Nahm Khem coast from the force of these waves. (**Map 2 #1**)

The second type was small waves that occurred in front of the Bahn Nahm Khem coast. These were the aftereffect of the large waves. (**Map 2 #2**)

The third type was large waves that occurred on the western side of Bahn Nahm Khem in the Lam Son and Lam Pom areas. They were similar in scale to the first type of wave described above. (**Map 2 #3**)



Map 2 Types of sea waves washing against the coastal area of Bahn Nahm Khem

These three types of waves contributed to the Bahn Nahm Khem community's ability to develop a fishing industry. There was adequate natural protection from destructive waves in this fishing port community. This allowed a safe working environment for the large labor market. The waters of the channel were deep and calm enough to allow safe passage from Pak Koh Canal to the Andaman Sea.

1.2 The community's ecology before the Tsunami

Based on the information given by the villagers and the community heads, it is believed the coastal ecology of Bahn Nahm Khem was one of the most abundant in the area.

There was biological diversity and a complex food chain. But the community did not systematically collect data on sea and coastal natural resources. The community lacked data collection expertise and there were no organizations to offer support. Even when organizations did study, research and survey in

the Bahn Nahm Khem area, none brought back the information or findings to the community in order to aid in development. This happened both before and after the Tsunami.

The community wishes to keep such information at the community coordination center and use the information as the foundation of a development plan. The information would also be kept for other organizations interested in working with the community. This background information could prove invaluable for future works of development.

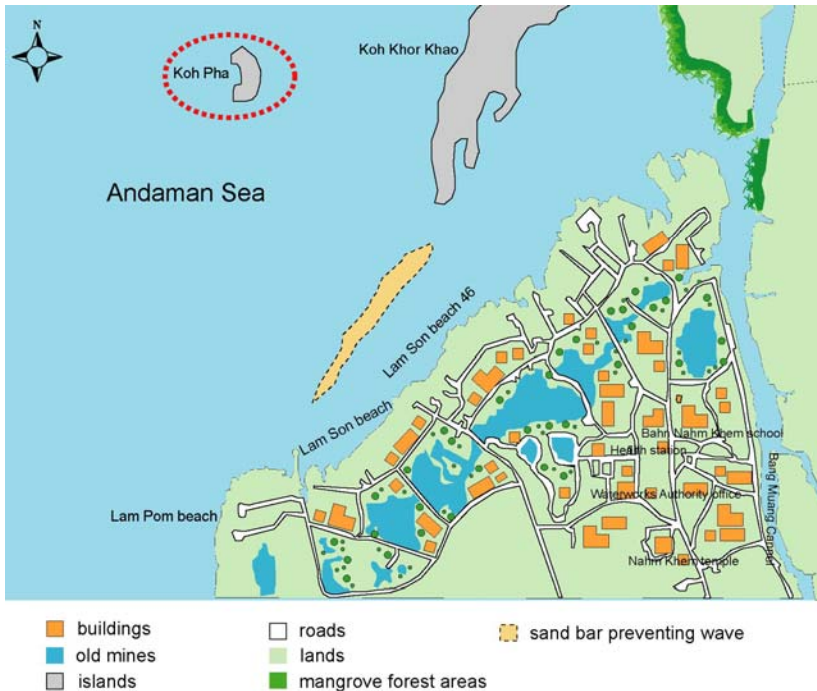
In regard to the historical use of the coastal and sea ecology, the community heads and the villagers cannot give exact quantitative or statistical information. But according to their related experiences and estimations, the community's ecology can be divided into four areas:

1.2.1 Corals

The important source of coral in Bahn Nahm Khem community came from the area of Koh Pha. Koh Pha is a small island located at Moo 4 Tambon Koh Khor Khao in Takua Pa district. The island is 3.729 square km and is about ten km from the coast of Koh Khor Khao.

Before the Tsunami, the beaches were clean and had a fine, white sand. The water was calm and clear. Many Bahn Nahm Khem villagers used Koh Pha as place to relax. Tourism was a major source of revenue income for the community.

Koh Pha was an important source of various coral such as *Porites lutea*, *Favia speciosa*, *Favites abdita*, *Acropora clathrata*, *Australomussa (rowleyensis)* and *Echinophyllia*. This coral was also the dwelling place of various aquatic animals such as the Anemonefish, and the Giant clam *Tridacna squamosas*. At present, *Tridacna squamosas* is near extinction and is a protected species by Her Royal Highness Princess Sirindhorn.



Map 3 The location of community's coral sources (Koh Pha)

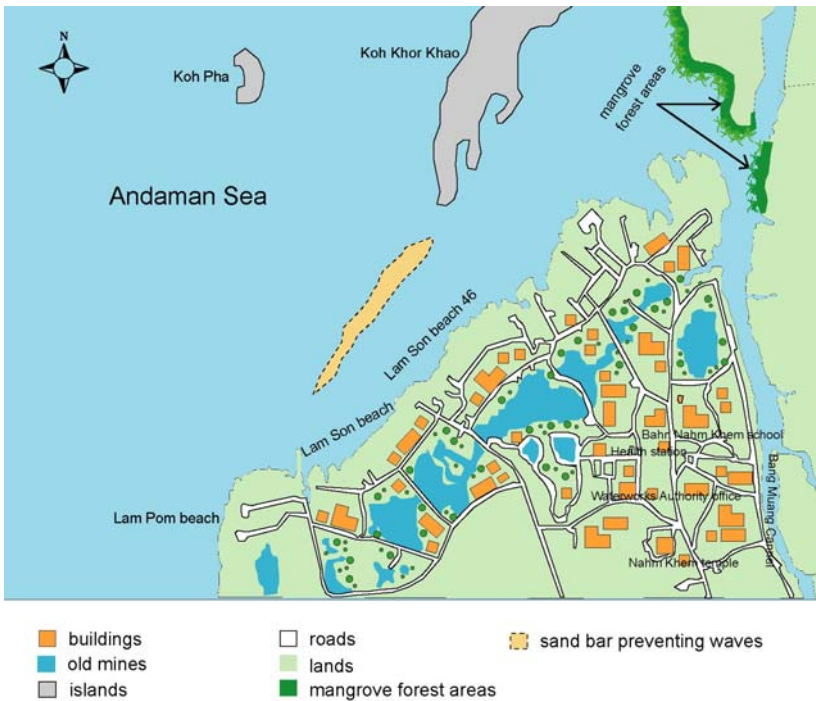
Koh Pha offered more than beautiful corals and a source of food for the fishermen. Koh Pha is also a sacred place for the Bahn Nahm Khem villagers. In April of each year, the fishermen perform rituals and pay respect to the spirits of their ancestors. These rituals bring the people together and form a bond of love and unity within the community. These rituals give the villagers a sacred sense of obligation to preserve Koh Pha for future generations.

1.2.2 Mangrove forests

Before the Tsunami, new mangrove forests grew from the muddy waters of the existing mangrove forests in the Bahn Nahm Khem area. There was biological diversity in the forests with many types of plants growing such as mangroves and *aegiceras*. These grew to be between eight and ten meters in height.

The mangrove forests were important to the Bahn Nahm Khem community. The trees were burned to make charcoal and fishing tools. The mangrove forests were an important link in the food chain of this coastal area. For the animals that lived there, it was a dwelling and hiding place. It was a hunting and a feeding ground, in addition to a spawning ground. For the villagers of Bahn Nahm Khem, the mangrove forests offered a source of nourishment and provided an opportunity to earn a living and support their families.

The mangrove forests provided protection from nature’s calamities. The forests limited the violence of the waves and provided shelter. The Tsunami damaged nearly all of Bahn Nahm Khem and the nearby communities. However, the houses directly behind the mangrove forests were spared. The mangrove forests served as an important breeding ground for aquatic animals. They also provided a source of charcoal and offered natural protection against damaging waves.



Map 4 Mangrove forest areas of Bahn Nahm Khem

Bahn Nahm Khem villagers believe in the importance of forest conservation. The community has rules about usage of the mangrove forests and the beach forests. The rules state that a villager shall not cut more trees than he needs. And the villager agrees to plant and grow an equal number of trees to compensate for what he takes.

Each year the community holds a forest ordination ceremony and other tree growing activities. These fall on important and auspicious days such as Mother's Day on August 12th and Father's Day on December 5th. By growing trees with their own hands, the villagers feel and see the importance of their actions. These activities promote a sense of participation and responsibility for the trees and for all of nature's gifts.

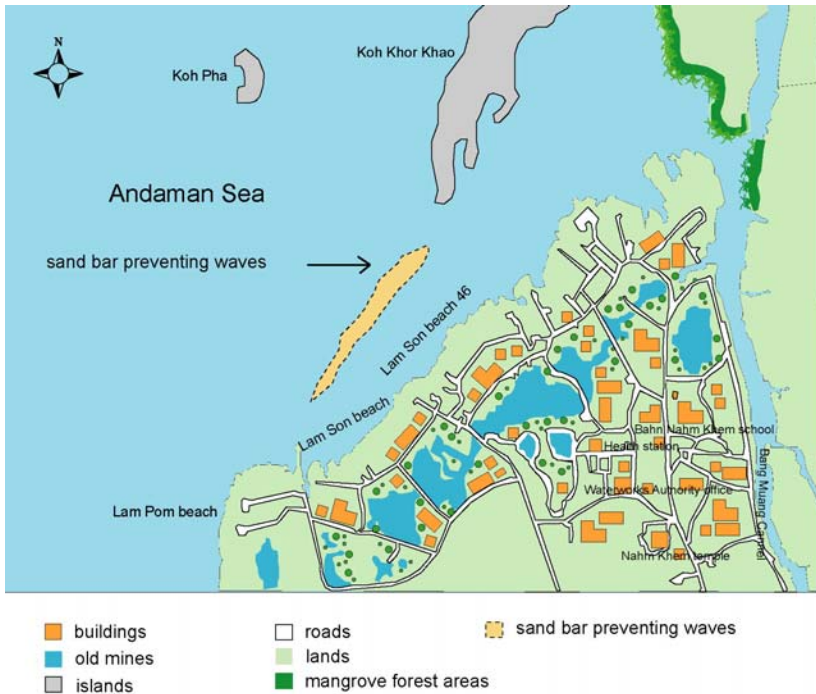
After the Tsunami, the community held a tree planting ceremony in dedication to the spirits of the victims of the Tsunami. The community felt possessive and responsible for the trees. This was tied in with their feelings of remembrance for their departed fellow villagers.

The mangrove forests are an active component in the faith and beliefs of the villagers. These rituals give them an opportunity to realize the value of forest conservation. It also allows them to participate in the rebirth of the mangrove forest ecology after the Tsunami.

1.2.3 Sand bar preventing waves

A sand bar over two kilometers long lay to the southwest of Koh Khor Khao. This sand bar ran parallel to the Lam Son coast. Before the Tsunami, this sand bar prevented severe sea waves from damaging the coast. This helped make this area an ideal fishing port. It also helped protect the coast from erosion.

On the sand bar grew coconut trees and coastal pine trees that also protected against wind and wave damage. This sand bar supported its own diverse ecosystem. Animals laid eggs to grow and hatch on the sand bar. The villagers fished here for crab and grouper. The sand bar or sand bar also served as a location to moor fishing boats. The river channel between the sand bar and the beach was a navigation route for boats of all sizes to the Andaman Sea.



Map 5 Sand bar preventing natural waves

1.2.4 Beach forest and the beach

A series of trees grew on the sand bar known as beach forests. Forests also grew on the mainland just behind the coastal beaches. There were three main types of trees on the beach forest and beach areas of Bahn Nahm Khem. These forests served as a natural barrier against the sea and storms.

Local fishermen used the beach as a place to repair their boats. They moored their able boats in the sea near the coast.

The beach and beach forests also served as tourist attractions for visitors and relaxation spots for the Bahn Nahm Khem villagers.

Although Bahn Nahm Khem community takes from the beach forest, the community also gives back by participating in active conservation. The villagers plant an equal number of trees to replace the trees they cut down. The community recognizes that the number of trees must not be reduced.

The community cooperates with various organizations such as the Department of Marine and Coastal Resources.

There was a tree planting ceremony for the victims of the Tsunami. New coastal pine trees were grown as a memorial to the victims. It also served as a way to restore the balance of the ecosystem and as a protection against continued erosion.

1.3 The advantages of the community's ecology for travel entrepreneurs

This area had much to offer in terms of natural beauty. Koh Pha had beaches with fine sand. It had abundant beach forests. The island had beautiful coral, exotic fish and other aquatic animals. Koh Khor Khao was a relaxing destination for both villagers and tourists alike.

These and other features made the islands an ideal location for travel entrepreneurs and tourist businesses. This generated a great deal of revenue. Businesses included hotels, resorts, guesthouses and restaurants. Travel agencies arranged trips for tourists to explore the beauty of the area.



Figure 1: Resort next to the beach

The ecology and environment offered businesses direct advantages. Hotels and resorts near the beach received natural protection from the beach forests against sea waves. The natural protection made it a safe area for swimming. It also made for a splendid atmosphere for tourists. The beaches were convenient places to relax in beach chairs and watch the Andaman Sea or take a stroll.

Information was gathered from the businessmen of these areas. They shared a similar perspective on the importance of the community's ecology on their

enterprises. They understood the main purpose of this travel destination was to offer a relaxing atmosphere in which to appreciate the natural unspoiled beauty of the islands. This is why tourists visited this community specifically. But in many provinces, the ecologies were being destroyed.

For example, at Patong Beach and the other beaches in Phuket, there was a constant stream of tourists on vacation and entrepreneurs doing business. The environment was altered to keep pace with the constant turnover of guests. The environment had no time to adjust to these changes and the natural beauty was destroyed.

In contrast, Bahn Nahm Khem and other nearby areas were able to retain their natural beautiful scenery and plentiful ecology. These areas could support the number of tourists without drastically affecting the ecology. Khao Lak lay a short distance up the mainland from Koh Khor Khao. While smaller in scale as a tourist destination than Khao Lak, Koh Khor Khao shared the same calm waters and beautiful beaches.

Another advantage of this area was how close locations were to each other. It was convenient and easy to travel between Khao Lak, Koh Pha, Koh Khor Khao and Lan Som Beach. This gave tourists more opportunities to explore different environments.

The entrepreneurs spoke with one voice concerning the ecology. They understood that by preserving and protecting the environment, they protected their investments. They were aware of the devastating effect a Tsunami could have and how all businesses would suffer. Many other tourist destinations were overrun with beachfront business and entertainment venues. Bahn Nahm Khem and Khao Lak businessmen attempted to retain the natural beauty of the original environment.

After the Tsunami, in order to alleviate the security concerns of the guests, several hotels installed warning systems on the coast. These were connected to signals at the beach guard towers. This was in addition to the early warning systems put in place by the governmental agencies.

2. Changes in ecology after the Tsunami

After the Tsunami, the ecology of six provinces was changed. Phang Nga province was affected most severely, especially in the Bahn Nahm Khem

area. Before the Tsunami, there was a balanced ecology in Bahn Nahm Khem. The food chain was complex and plentiful. There was a biological diversity that was sufficient for Bahn Nahm Khem villagers and businessmen to operate a strong fishing industry. After the Tsunami, people were devastated and property was destroyed. The ecology of the environment was violently affected. Some parts of the ecology will never recover. The parts of the ecology that can recover will take a long time to do so.

2.1 Corals

Initially, Koh Pha developed after one hundred years of coral piling up and forming into a land mass. This served as the foundation of the island. The violence of the Tsunami devastated the important coral reefs of Koh Pha.

The amount of marine life that dwells among the remaining coral has been greatly reduced. Many of the beautiful corals were broken and subsequently died. Some of the corals have become extinct and various aquatic animals are gone as well. The beaches of the island were damaged and covered with deposited sand and sediment. It will be difficult for the ecology to return to its former state.

2.2 Mangrove forests

Before the Tsunami, a new segment of mangrove forest grew on the muddy banks of the old mangrove forest near Bahn Nahm Khem. They grew near the mouth of the bay. These mangrove forests were badly damaged by the Tsunami.

The Tsunami's violence damaged the mangrove forests and destroyed trees such as the *Rhizophora* and the *A.officinalis*.

Large sea waves crashed against the trees breaking them or uprooting them entirely from the muddy soil. Holes in the mud were all that remained as evidence of their existence.



Figure 2: Damage to the mangrove forests

The Tsunami eroded the land of the mangrove forests. Sand was carried by the waves and deposited in some areas. The waves carried the remnants of fishing boats, fishing tools and other debris that was then deposited in the mangrove forests.

Before the Tsunami, the mangrove forests sustained a complex food chain. There were many kinds of plants and animals living there, including monkeys, snakes and squirrels. This was in addition to the aquatic animals. After the Tsunami, many species were wiped out entirely. Other species remained in decreased numbers. A severe lack of food to sustain them remains an issue.

Type of area	Previous condition of area	Damage	Sample areas
1. Newly grown mangrove forests	Abundant <i>A.officinalis</i> measuring eight to ten meters.	Area is destroyed 100%	*Bahn Nahm Khem, Takua Pa district, Phang Nga
2. Natural Rhizophora forests	Abundant and dense Rhizophora forests growing	Natural Rhizophora forests are destroyed approximately 40 m from the coast	* Bahn Thap Lamu, Thaimuang district, Phang Nga *Bahn Koh Khor Khao, Takua Pa district, Phang Nga
3. On the canal bank in the mangrove forest	A variety of trees	Bank of the canal is eroded by waves	*Koh Prathong, Kuraburi district, Phang Nga

Table 1 Types of mangrove forest damage in the Phang Nga area following the Tsunami. (Source: Department of Marine and Coastal Resources)

Map 6 Damaged mangrove forest areas in Phang Nga province (Source: Department of Marine and Coastal Resources).



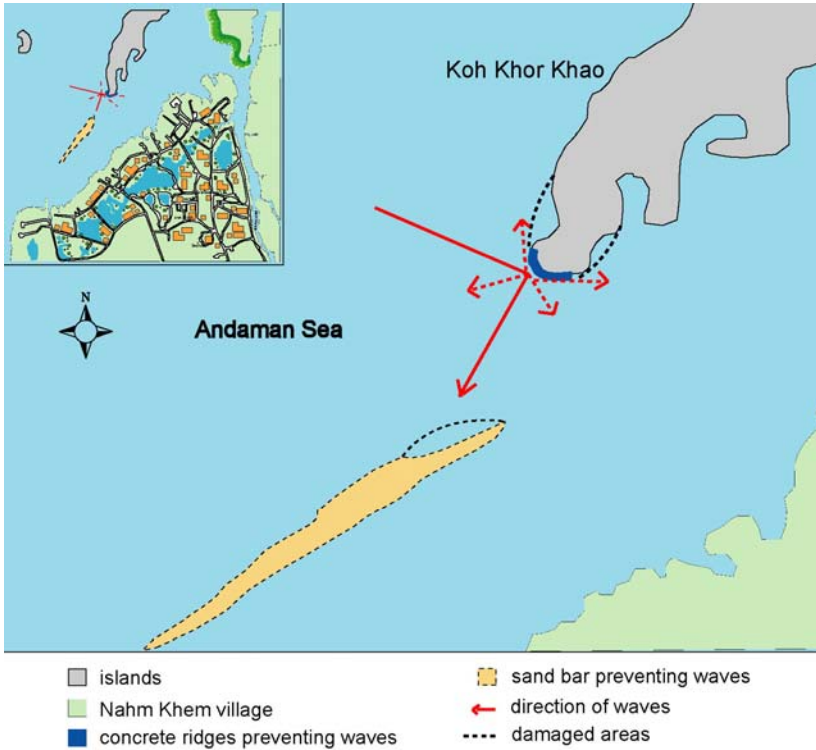
2.3 The sand bar

The Tsunami damaged the sand bar of Bahn Nahm Khem, which was parallel to the Lam Son Beach. The trees that grew on the sand bar were uprooted by the Tsunami. The violent waves of the Andaman Sea continue to carry sand across the sand bar and deposit it in the sea opposite the beach. The reduction of the sand bar and the accumulating sand deposits in the channel opposite the beach allow severe sea waves to roll into the coast.



Map 7 Damage to the sand bar after the Tsunami

In addition, the sand deposits in the channel between the sand bar and the coast of Bahn Nahm Khem make the water shallow. Each sea wave pushes more sand from the sand bar into the channel. As the natural protection erodes, waves crash more violently into the coast. As the waves recede, they pull more coastal sand back into the channel. These two factors make the river channel too shallow for the fishermen's boats to pass. The former shipping route can no longer be used. The ships must now use a longer route traveling on the north side of the reduced sand bar, adding time and expense to their journey.



Map 8 Damage to the sand bar from concrete barriers

Another factor in the continued erosion of the sand bar is man made. The Tsunami destroyed the one resort on the coast of Koh Khor Khao. In the restructuring, new investors built four resorts to take its place. These new resorts along the western coast of Koh Khor Khao built concrete barriers to prevent coastal erosion and damage to resort property. Sea waves deflect against the barriers and cause erosion further down the coast and away from the resorts. While protecting the resorts, these barriers also cause damage to the sand bar. Each time the sea waves crash against the barriers, they deflect back into the sea and towards the sand bar. The damage is cumulative and occurs with each wave.

Map 9 Tsunami damaged beach forests in Phang Nga province (Source: Department of Marine and Coastal Resources)



2.4 The beach forests and the beaches

Before the Tsunami, coastal pine trees grew in the beach forests of the sand bar. They also grew on the mainland just behind the coastal beaches. These acted as a natural border between the sea and the coast. They reduced the violence of the sea waves and of monsoon season storms. After the Tsunami, most of these trees died. The soil at the foot of these trees was eroded and left the roots exposed. The Tsunami waves carried sand and sediment and deposited it in the river channels. The beaches also suffered severe erosion. As a result, the river channel became two to three times wider than before the Tsunami. This was due to the erosion of the beach and the sand bar. But the sediment deposits made the water very shallow near the sand bar. And erosion did the same to the beach. The water level was very shallow but the channel was very wide. This rendered the river channel impossible to navigate with fishing boats.

3. The impact on Bahn Nahm Khem community

The Tsunami greatly affected the environment of the Bahn Nahm Khem community. The community found various ways to help restore the damaged areas. Other relief activities were supported by various regional organizations. This included the Mangrove Forests Office, a division of the Department of Marine and Coastal Resources. Assistance came from the release of aquatic animals into the sea and from the distribution of small plants. Some parts of the ecology can recover naturally but this rehabilitation process demands time.

The Tsunami had great impact on the lives of the local fishermen. When the ecology changed, many marine resources were lost and the fishermen could no longer earn a living. They searched to find new ways to survive. As most of the villagers of Bahn Nahm Khem were fishermen, the entire community suffered.

Other businesses were dependent on the income from the sale of the villagers' fish. A decrease in fish products affects other sectors of the Thai economy.

The Bahn Nahm Khem community received a massive wave of aid provisions in an effort to restore the ecology and help the villagers. Did the aid provisions help or hinder the recovery process? One factor to consider is that the government implemented policies in the damaged areas without the consent of the locals.

3.1 Effects of the massive wave of aid provision

3.1.1 Wave of assistance

The Tsunami destroyed six Andaman coastal provinces in Southern Thailand and caused a great loss of life and property. Following the Tsunami, another giant wave struck. It was the wave of provisions that flooded the Tsunami-affected communities. Bahn Nahm Khem received charity from many official and independent organizations in the public and private sector as well as from generous individuals.

But the lack of coordination between these organizations brought about a negative long-term impact upon the community. Conflicts concerning equal and thorough benefit distribution within the community became a major

issue. It also encouraged the local people to have unlimited desires and to seek short-term benefits instead of long-term development.

Different organizations helped in different ways. This included assistance in building new homes, providing fishing boats and equipment for the fishermen. Monetary donations were also given to the victims. But the organizations often provided ill-informed or redundant assistance. As a result, the local people's needs remained unfulfilled.

Many organizations seemed more concerned with the concept of assistance than actually helping the victims. They did not consider the needs and the social nature of this specific community. They came and took photos and wrote reports to their financial backers to justify the contributions. These reports did more to promote a positive self-image of the organization than it did to assist the victims. This kind of help added to the long-term problems of the community.

Many problems remained unsolved due to a lack of understanding by the donors. They did not take the specific needs of the community into consideration. New houses were built but they were completely different from the style that was appropriate for this location. The houses were built according to the wishes and desires of the donors rather than the needs of the recipients. The houses were completely different from the type this community had lived in for generations.

The donation of fishing boats and equipment and the assistance in the repairing of damaged boats also brought about problems. Now there was more equipment than was necessary for the number of trained fishermen. And there was not enough fish in the sea to support the number of fishermen, due to the damage from the Tsunami.

Another problem that arose from the excess fishing equipment was a problem concerning waste. Each family historically had only one seine net for fishing. If the net developed a hole or was damaged during use, the fishermen would repair and reuse the net. But as a result of having too many donated nets at their disposal, the fishermen began to leave the damaged nets in the sea. Why spend the time repairing a net when you can receive a new one? The fishermen's discarded nets became garbage in the sea, adding to the pollution of the environment. These discarded nets also become traps for the fish, thus wasting more of the already diminished food supply.

Yet another problem was caused from the type of fishing equipment that was donated. The equipment was appropriate for big fish farming rather than fishing with simple equipment as had been done for generations. This type of equipment is very destructive to the sea and the sea animals. For example, large companies use sea tractors rather than small seine nets to catch fish. The wheels of the sea tractor act much the same as the caterpillar tracks of a tank. The nets have many legs attached, much like a centipede or caterpillar. The track has the ability to roll over large stones on the floor of the sea, similar to a tank going over land. These wheels destroy or damage everything in its path. In this case, it was beautiful coral, stones and plant life. Small sea animals were also caught in the nets and so the food chain was once again ruptured.

These are some of the most obvious problems brought up by the local people. Unfortunately, there are many more. A better plan would have been for the organizations to solve the urgent short-term problems. But leave the solution of the long-term problems, with appropriate funding, to the people of those communities.

3.2 Government policy

Many problems in the community have not been resolved. The government administered policies to assist in the recovery of the damaged areas and help the local people.

But these policies were administered without allowing the people involved to express their opinions. Nor could they obtain information about the policies from the government.

The Andaman Coast Tourism Recovery Project made policies that created large problems for the local people. This project was established to manage the old estate for special tourism according to the government's strategy. The project has predetermined goals, policies and plans to manage and develop special zones for tourism. Another problematic policy for fishermen is the Converting Assets to Capital Policy. It is more commonly known as the Sea Food Bank Project.

3.2.1 Andaman Coast Tourism Recovery Project

This policy is the responsibility of the Designated Areas for Sustainable Tourism Administration (DASTA). It is under the authority of the Office of

The Prime Minister. It aims to identify target areas to become tourist attraction 'special zones.' Entrepreneurs interested in involvement can present their project proposals at DASTA centers for consideration and advice. DASTA will issue a permit of compliance for identification purposes. The permit will be granted within 30 days. Interestingly, the government remains the principal capital investor for every project. As a result, the independent investor risks little in the event of failure.

Also of interest, when DASTA announces special zones for tourism, it can invest in those areas and share investment costs with the private sector. It can invest with individuals or privately held companies. Moreover, it can act as an agent to hire individuals or companies to launch businesses in these special zones.

DASTA's objectives, clearly legislated in section 7 (5) (6) and (7), are to encourage and support people and communities to preserve and develop their local tourist attractions. It also encourages local organizations and local administrations to preserve their culture and folklore. Moreover, it aims to support tourism activities through adequate training and employment of local people. This will supposedly enhance the quality of their lives.

But the fact remains that the theory and the practice are two completely different matters. This is evident in the launched projects of Chiang Mai, Phu Luang, Koh Samet, Koh Chang and the Phi Phi Islands. Local people all opposed these projects and the plans for special zone development for sustainable tourism. These projects favored urban-style development and gave benefits only to tourism and to real estate property investors.

Immediately after the Tsunami hit the Andaman coast, this project was launched in Khao Lak, Phang Nga province. This proved to foreshadow the large capital investors' plan to take advantage of the situation. It included big capital investors such as Charoen Pokphand (CP) Group and numerous politicians. Inevitably, small local investors would not be able to survive in Khao Lak or other nearby areas.

In Khao Lak, DASTA planned to divide the area into three parts. The north of Bahn Nahm Khem would serve as a residential community. Bang Niang Beach would be reserved for small bungalows and resorts. The area of Moo 5-7 Khuk Khak district would be reserved for large hotels and resorts.

Unfortunately, the local villagers were never made aware of the government's plan. Numerous people have had their land seized and were subsequently driven from their homes because of this tourism project. As a result of such actions, there are community network groups aiming to stop DASTA. They want these plans discontinued and the organization dissolved.

The announcement to designate special zones for tourism is no different than the decision to designate special economic zones. There is no accountability to any type of outside agency. The real purpose of the project is for the government together with politicians, officers and capital investors to reap the benefits of the land. The natural resources will be in the hands of the capital investors rather than the locals. If the government insists on continuing the project, there should be a neutral managing committee for special zone development for sustainable tourism. This committee would work with the locals so that the plans would incorporate the needs of the communities with the demands of the government.

3.2.2 Converting Assets to Capital Policy or the Sea Food Bank Project

The policies concerning poverty, declined fish farming and the decrease of aquatic animals are not meant to eradicate or solve the problems. They are meant to develop sea food production at the expense of natural resources. This is the foundation for the idea of Converting Assets to Capital Policy, also called the Sea Food Bank Project. This project has caused many problems for the residents of Bahn Nahm Khem. The first problem was the issuing of the Sea Food Bank Project permits. The government did not issue a permit to every local fisherman. This was the same problem encountered by the miners when the area was primarily a mining community. The policy aims to grant benefits to investors and politicians who wish to own exclusive rights to the sea.

This policy was one of the 'popular public policies' during the Thaksin administration. It was intended to assist in the management of fish farming. The government guarantees local fishermen permission to conduct fish farming in a designated area. Fishermen with permits can get a bank loan from official banks that are involved in the project. The Bank of Agriculture and Agricultural Cooperatives or BAAC was the first bank that was involved with the project. Local people with a Sea Food Bank Project permit could obtain a bank loan with the BAAC as the guarantor. The bank was permitted to loan fishermen up to 50,000 Baht.

The Sea Food Bank Project permit cannot be bought or sold to another person. It can be transferred to the child of the holder when the holder dies. This simplifies the mortgage process for the bank and makes the child of the original holder responsible for any assumed debts.

The Converting Assets to Capital Policy project is managed by the Department of Fishery. This department is responsible for identifying target areas and creating a sea map that can be separated into fishing grounds.

The villagers are allowed to breed aquatic animals in no more than eight floating baskets. These floating baskets house the live fish while in the water. The baskets for breeding shellfish are not more than 72 sq m (each basket needs an area of 3x3 m). The baskets for breeding fish are not more than 128 sq m (each basket needs an area of 4x4 m).

In the Bahn Nahm Khem community, Sea Food Bank Project permits were issued to 30 fishermen who wished to take part in the project. These fishermen believed this was the government's attempt to assist Tsunami victims. The plan was to help fishermen to breed aquatic animals in a floating fish farm. But the fishermen did not understand the underlying implications of this project. They did not understand the Sea Food Bank Project was intended to grant title deeds to the fishermen to own sections of the Andaman Sea.

When the heads of the Bahn Nahm Khem community and the other villagers realized the true purpose of the project, they understood how problematic the situation was. The sea was the property of all people. A person cannot own the sea. One fisherman does not have the right to own the sea over another fisherman. If the sea became the property of individuals, there would be great conflict within the community.

The Sea Food Bank Project's policies emphasized the difference between the investors and the government from the local fishermen. The fishermen understood the sea was a gift and a source of life. It was not a commodity to be bought or sold.

The villagers were afraid of the repercussions if capital investors were allowed to own the sea. They realized all their claims would be meaningless and they would lose all rights to the waters they have historically fished in.

The local fishermen depend on the sea. Everyone should have the right and the freedom to partake of the sea's bounty. No one has the right to claim the sea for himself. But the government established a policy to do exactly that; to give the rights of the sea to an individual.

In the future, those fishermen who did not participate in the project or who were denied permits will be at a terrible disadvantage. They will no longer be able to fish in the areas they were accustomed to. They will be unable to fish in any area where an individual has a permit and a title deed. By fishing in these areas, they would be trespassing and fishing illegally. The fishermen could be punished in a court of law or by the landowner outside of the courtroom. This action could be verbal threats or physical violence. It could also involve the use of firearms. This poses a very serious problem for the fishermen and for the community. How can the fishermen live and work in the sea if the sea has an array of owners?

Another issue for the fishermen with title deeds is their lack of experience as fish breeders. The Sea Food Bank Project permit allows them to receive a loan from the bank to invest in the purchase of materials to construct fish farming nets and aquatic animals for breeding. If the fishermen are unsuccessful in this venture and are unable to repay the debt on the loan, the bank will become the owner of the Sea Food Bank Project permit. The permit would be used as collateral for the loan, to be given up in exchange for the business debt.

This is a legal way for the capital investors and the banks to obtain title deeds to the sea. This policy appears to help the Tsunami victims on the surface but deep down it is a method to take the rights of the sea away from the villagers. The capital investors include politicians and land developers. It also includes organizations such as the Charoen Pokphand (CP) Group. As the title deeds move from the fishermen to the capital investors the need for more capital will increase. Eventually the rules will be stretched to allow foreign investors to enter the market.

The capital investors go to the community and make offers to the fishermen. For example, the capital investors support the idea of floating fish farms. These are in essence large stationary nets used for the breeding of aquatic animals. They invest in the business and the fishermen sell the fish back to the investors.

But the contracts are unclear who is responsible in the event the fish die or there is not enough fish to sell. Or who is responsible in the event of another natural disaster. One may assume it is not the investor. If the business is successful, the investor makes a profit. If the business is a failure then the investor or the bank receives the title deed. This is an example of the leverage levied by the government's policies to favor the investors rather than the villagers.

In addition, the community is afraid that if the Department of Fishery does not grant the Sea Food Bank Project permit to all local fishermen, the community will suffer adverse effects. There will be conflict if some fishermen have advantages over other fishermen. There will be conflicts over the distribution of wealth. Again, this is a repeat of the situation during the time of the mining industry.

4. The community's reflection

1. Bahn Nahm Khem community lacks knowledge in the fields of natural resource and environmental conservation. The villagers want organizations to teach them and help them utilize these concepts. This will allow them to achieve the goal of environmental conservation. The villagers would prefer experts in these fields from governmental or non-governmental organizations to impart the knowledge.

2. In the past, Bahn Nahm Khem community had an abundant ecology and biological diversity. But they lacked knowledge concerning data collection and systematic management. Therefore the community wants experts to help collect data that can then be used to develop strategies. This will help them to assist in the replenishing of the diminished natural resources.

3. The government has a tendency to establish policies without researching if the policies are helpful to the community. The government does not consult the local people and ask for their opinions. The government should take into consideration what the local people want for their community. The government should listen and understand and put what the people want into public policy.

4. The villagers of Bahn Nahm Khem want organizations to help in the rehabilitation of the community's ecology. This is more important than tourism policy planning. For example, The Andaman Coast Tourism

Recovery Project should assist the villagers in the recovery of the community not assist the land developers.

5. The tourism entrepreneurs in this area want the government to promote ecologically and environmentally sound tourism policies. This is more important than economically based tourist policies. Tourists come to this area because of the natural beauty of the beaches and the sea. They come to appreciate the serene atmosphere and the landscape. In addition, the government should support small entrepreneurs that run businesses in the area rather than support large businesses and franchises.

5. The final lesson

The governmental and non-governmental organizations that want to help the Tsunami-affected communities should allow the community to participate in expressing their opinions. The community should be given a chance to be responsible for a rehabilitation plan based on need, appropriateness and relevance to their community's condition.

Historically, the government has established policies that attempt to recover aspects of the ecology without considering the wishes of the local people. The government's policies should be practical and focus on long-term rehabilitation. The policies should benefit all local people equally. They should not benefit one group more than another. The policies should not favor outside developers who will reap benefits from the suffering of the Tsunami victims. The policies must not exploit the local people's lack of expertise in contract and legal negotiation.

The members of the community doubt that the policies set by the government can solve their poverty issues. Bahn Nahm Khem community is just one of the targeted goal areas of the government's policy for The Andaman Coast Tourism Recovery Project. The government also supports the converting assets into capital project. These two policies hurt rather than help the community.

Through the tourism development policy, the government is able to legally take the villagers' land. The government uses deceptive strategies that the villagers cannot understand. When the government asks for the villagers' support, they give it willingly. They place hope in the government's ability and promise to resolve their financial woes. The villagers understand they

cannot solve the problems without assistance and so they do as the government asks unconditionally.

The government tries to convince the villagers that the Converting Assets to Capital Policy will end their poverty issues. The government claims poverty can be ended by granting ownership of the sea and by investing in aquatic animal breeding. Do these policies really convert public assets into the community's assets? Whose capital is it really? And how exactly is this achieved?

This policy cannot end poverty issues for the villagers. The villagers incur debt when they cannot repay their loans and are forced to mortgage their Sea Food Bank Project permit to the government's bank (BAAC). The permit is a legal way for the capitalist investors to claim legal ownership of the sea. When capitalist groups own the sea, the villagers will not be able to support themselves. Their peaceful way of life will be forever changed. Corporations and politicians cannot be allowed to own the sea. It belongs to everyone as a source of food and life.

Nature caused the Tsunami and nature must be allowed to restore its natural balance, but man through his policies can also bring about disaster. Policies that lack benefit for the good of the people, to instead benefit only some individuals should not be allowed.

The villagers do not want to see the community's assets become the assets of a select group of powerful individuals. The villagers want the government to discontinue the Sea Food Bank Project and the Designated Areas for Sustainable Tourism Administration (DASTA).

The Bahn Nahm Khem community does not want the government's unfair policies. They insist the government must listen and take notice of the local people when planning and setting policy for sustainable development. They wish to establish projects that they can create and manage based on need, appropriateness and relevance. The projects must be beneficial for both the community and the ecology.

Publications of Tsunami Aid Watch

Forthcoming publications

1. Evolving from the Waves: Future prospects and task for a post Tsunami NGO. By Phakphoom Withanthirawat.

2. Three years of Tsunami rehabilitation in Bahn Nahm Khem: Opportunity in crisis. Compiled by the community of Bahn Nahm Khem. By Somsak Suriyamonthon.
3. Bridging the expectation gap: Lessons learnt from three years of Tsunami aid delivery and rehabilitation in Thailand. By Karl Segschneider und Lars Krause.
4. Communities in Limbo: Land profiteering after the Tsunami. By Sayamol Kaiyoorawong, Somyot Tolong and Dawan Sanlee.
5. Tsunami impact: The world of Morgan, Morglan and Urak Lawoi sea gypsies after the waves. By Sumroeng Choeychuenjit.

Previously published

1. TSUNAMI. A study on disaster response in Sri Lanka, with a contribution on the situation in Thailand by Karl Segschneider, Director of the TAW team, published in cooperation with Heinrich Böll Foundation, Brot für die Welt and medico international, July 2006
2. SCOPE-Charters. Sustainable Community Owned Professional Eco-Charters. Edited by TAW, Chiang Mai, December 2006. ISBN 978 974 88189 7 9
3. Renewable Energy Options on Islands in the Andaman Sea. A feasibility study for hybrid renewable energy/diesel systems in two Tsunami impacted communities. Edited by TAW, Chiang Mai 2007. ISBN 978 974 7093 51 3
4. Seal of Fair Recovery (SoFaR). A support tool for post disaster rehabilitation. A concept paper – Siegel „Fairer Wiederaufbau“. Zur Unterstützung des Wiederaufbaus nach Katastrophen. Ein Konzeptpapier. Edited by TAW, Chiang Mai 2007. ISBN 978 974 8266 12 1
5. Tsunami: CROSS-Effects? Christian Religious Organizations' Support and its Socio-cultural Effects on aid recipients in Tsunami Rehabilitation. A case study at Thungwa, Thabtawan and Nahm Khem villages of Phang Nga's Takua Pa district. By Pikula 76 Sithiprasertkula, in cooperation with Save Andaman Network, edited by TAW, Chiang Mai 2007. ISBN 978 974 8410 258
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7. The Tsunami Early Warning System in Thailand, a resource book, including a synopsis of comments by Tsunami impacted communities, 30 months after the disaster. Edited by TAW, Chiang Mai 2007. ISBN 978 974 8418 26 1
8. Andaman Communal Development and the Tsunami. Part 1: The origins and culture of the Morgan Sea Gypsies. By Sumroeng Choeychuenjit. Part 2: Changing Coastal Ways of Life. By Somyot Tolang. In cooperation with Save Andaman Network. Edited by TAW, Chiang Mai 2008. ISBN 978 974 13 8162 3
9. Building for the Future: A communal approach after the Tsunami. Case study 1: Building houses. By Chalinee Sathanboa. Case study 2: Establishing and managing community shipyards. By Witthaya Aphorn. In cooperation with Save Andaman Network. Edited by TAW, Chiang Mai 2008. ISBN 987 974 8410 241

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