

A P P E N D I X I

Water and Sanitation Needs Assessment

Kathu District

Introduction

The data and figures in this appendix have been translated from documents gathered in visits to provincial, district and sub-district offices, as well as villages. The original documents can be made available on request.

We have included our survey checklists as a matter of completeness and consistency. Empty fields in our checklists imply that the question has been answered by documents from a government office or village.

The Report of Assistance for Tsunami Affected People

Assistance Provided	No. of People
First payment on January 14, 2005	454
Second payment on January 26, 2005	606
Total payments made 1,060 people by considering from people who filed an application between December 27, 2005 – January 21, 2006 for 2,834 people	
Additional people filed applications between January 22, 2005 – February 7, 2005 for 610 people.	610
The reasons for providing assistance	Estimated 2,384
4.1 Employees (Hotel staffs, Office workers and shops) the type of damage was property such as cars, motorcycles, etc.	
4.2 Jet ski owners	
4.3 Long tailed boat owners, boats used for tourism	
4.4 Tour desk; that have just 1 counter, 1 fax machine and rental for the space in front shop (with a signed contract)	
4.5 Tour Companies and Offices	
4.6 Beauty shops and Thai massage	
4.7 Bars	
4.8 Photo lads	
4.9 Tailors (with a signed contract)	
4.10 Taxi (green license plate), Vans (yellow license plate), Tourism Transportation service	
4.11 Medium sized Business owners (signed contract for building rental)	
4.12 Large Business owners such as Room rental, Guesthouses, Studio, Apartments and Companies	

Recommendations

- Everyone that was affected but did not receive assistance can proceed according to the following policy.
- If you notified the Police station before January 14, 2005, you should have already received assistance.
- Everyone that applied after January 14, 2005 will considered on a case by case basis.
- If you have not received assistance and you are a booth or shop owner inside the municipality, you should go with two other booth or shop owners to verify their loss with municipal officers.

The Report of Tsunami Damage in the Patong Municipal Area

1. Private sector

Subjects	Amount
Hotels	43
Studios	15
Shopping Mal	1
Jewelry store	5
Branch Banks	5
Bars	246
Photo Labs	30
Cars	250
Motorcycles	800
Staff Transportation	20
Vans	50
Tuk-tuks	50
Jet Skis	50
Long Tailed Boats	70
Speed Boats for Parasailing	10
Beach Chairs and Umbrellas	7,000
Total Cost of Damage	Estimated 2,500,000,000 Baht

2. Public sector

- Dolphin Park and landscaping
- Tourist Assistance Center
- 2 public bathrooms
- Food Court
- 5 Wayside shelters
- 1 school
- 1 Monk House
- 1 library
- Patong Municipal Youth Center
- Branch Police Office
- Equipments for 4 waste water control boxes
- 1 Muslim cemetery

Total Cost of Damage 157,000,000 baht

3. **Cost of Damage** to private and governmental sections is 2,657,000,000 baht.

4. **Population** based on census records 16,338 people

Populations	Amount
Male	8,060 people
Female	8,278 people

5. **Death** (Updated on January 31, 2005)

Nationality	Amount
Thai	79 people
Other Asians	73 people
Total	152 people

6. Beach chair and umbrella owners 55 people
7. Beach Massage owners 263 people
8. Mobile drink vendors 70 people
9. Rental car owners 96 people
10. Aid applicants 3,224 people (updated on January 31, 2005)
- Total damages around 2,748,845,002 baht**
11. Area 16.4 Square kilometers.

Documented Damage in the Patong Municipal Area

Small business owners 1,214 people
 Total costs 24,280,000 Baht
(Paid for through SAO budget)

The assistance for affected people, houses and damaged properties 96 people
 Total costs 1,220,000 Baht

(Paid for through Patong Municipal Office Budget)

Effects of the Tsunami in Kamala Sub-district Kamala SAO

Last Update: January 12, 2005

Total Deaths (66 people)	Total Missing People
Thai*	59
Foreigner	7

Remark: *32 of the 59 Thai deaths are residents of Kamala

Private Property

- The total number of damaged hotels 21. The cost of damage is estimated to be at least 685,000,000 baht.

No.	Location	Damage Cost (million baht)
1.1	Kamala beach Inn	70
1.2	Thavorn beach	100
1.3	Prince Kamala Resort	50
1.4	Kamala Bay Terrace	100
1.5	Kamala Beach Resort	100
1.6	Kamala Beach Estates	10
1.7	Kamala Thai Village	20
1.8	Bird Beach Bungalow	30
1.9	Benjamin Resort	30
1.10	The Club	20
1.11	Coco Hut Village	20
1.12	Grace Bungalow	20
1.13	Chama Bungalow	20
1.14	Rainbow Bungalow	10
1.15	Pa Ba Crame	20
1.16	Sea side Inn	20
1.17	Yada Bungalow	10
1.18	Maya House	10
1.19	Malinee House	10
1.20	Ice Bungalow	10
1.21	Kamala Seafood	5
	Total amount	685

2.	The number of damaged houses	761	houses
3.	The number of affected people	2,500	people
4.	The number of destroyed houses	210	houses
	Estimate cost is	278,915,000	baht
5.	The number of partially destroyed houses	228	
	Estimate cost is	71,479,600	baht
6.	The number of damaged boats	40	
	Estimate cost is	4,379,500	baht
7.	The number of destroyed vehicles	173	
	Estimate cost is	67,600,000	baht
8.	The number of destroyed motorcycles	392	
	Estimate cost is	17,268,950	baht
9.	Other property (household goods, electrical items, cash)		
	Estimate cost is	319,202,593	baht

Summary: Total value of property loss 1,443,845,643 baht

The total loss of government and private property approximately 1,498,445,643 baht

**D-TRAC Water and Sanitation Checklist
DISTRICT OFFICE**

Province: Phuket**Date:** 13/06/2006**Location:** Patong Municipal Office, Had Patong Community, Patong, Kathu**Name and Title of Person Interviewed:** Phunsak Naksana, Municipal Clerk**Phone:** 076 342 080 or 01 894 6493**Email:** -**Name and Title of Person Interviewed:** Jutarat Puttarak, Tourist Development**Phone:** 01 788 6706**Email:** prpatong@yahoo.com, www.patongmunicipality.org**Questions:**

	Yes	No
Do they have a printout of general statistics on their tsunami-affected district?	X	
If not, ask the following:		
A. Population Affected:		
• Number of families	See attached	
• Male/Female breakdown		
• Age breakdown		
• Affected sub-districts and villages		
• Number of deaths		
• Number of injuries		
• Number of missing persons		
B. Livelihoods Affected:		
• Fisheries (crab, shrimp, shellfish farms)		
• Boats		
• Agriculture (farming, crops affected)		
• Tourism		
• Other		
How has the district been handling general long-term tsunami relief and redevelopment within their jurisdiction? Ex. Do they have recovery programs, projects?		

Long Term		
A team of people and equipment has been compiled to act as a rescue team in the event of a future disaster. This includes a doctor, volunteers, engineers and rescue/communication equipment.		
Plans exist to install 3 tsunami warning systems		
Planning to practice escape drills twice yearly with Patong residents		
What tsunami-affected areas are still in need of water and sanitation assistance:	Water	Sanitation
• Villages	No problems. The villages have water from 3 sources: 1. Water from the mountains fed through PVC pipes. 2. Water from the Provincial Waterworks Authority. During the dry season access to this water is often restricted to a few hours a day. 3. A reservoir.	
• Temporary camps		
• New permanent housing		
• Schools		
• Preschools / Kindergarten	Municipal Pre-School Patong – needs bathrooms and water storage (see separate school form)	
• Health facilities		
Do affected villages have water committees?	Yes	No
		X
Who is the key contact for committee (ex. Village head)?		
-		

Are village households required to pay monthly water tariffs? (ex. Does each household pay for metered water consumption on top of flat rates for well/borehole electricity?)		
Villagers pay the Provincial Waterworks Authority by meter per unit. During the dry season some hotels buy water from Muang and Kathu Districts.		
How many children attend each affected school (remember – can be “affected” if children’s homes were lost, parents’ livelihoods affected, or one or both parents died in tsunami, etc)		
<u>Ban Kalim School:</u> <ul style="list-style-type: none"> ○ 5/6 teachers and 100+ students ○ Only school in Patong destroyed by the tsunami ○ Completely rebuilt by ITV with sufficient water and sanitation facilities. 		
<u>Municipal Pre-School, Patong (2 sites):</u> <ul style="list-style-type: none"> ○ 30 teachers and 3-400 students ○ Not directly damaged by the tsunami. 		
Both schools have water provided by the Provincial Waterworks Authority		
How many toilets and sinks are in each affected school?		
Insufficient bathrooms and water storage tanks at Municipal Pre-School Patong (both sites).		
What other needs do these groups have that haven’t been addressed yet?		
-		
Does the district office know of other aid organizations already working in the wat/san sector in their district?		
No		
Aid organizations: names, projects, locations?		
-		
Are SAOs or other government agencies (ex. MENR, provincial authorities) working in wat/san sector in tsunami-affected districts?	Yes	No
		X
Govt. agencies: names, projects, locations?		
All work was completed by the local government; no NGOs were responsible for any of the recovery work in the area.		

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DISTRICT OFFICE**

Province: Phuket**Date:** 13/06/2006**Location:** Patong Municipal Office, Had Patong Community, Patong, Kathu**Name and Title of Person Interviewed:** Phunsak Naksana, Municipal Clerk**Phone:** 076 342 080 or 01 894 6493**Email:** -**Name and Title of Person Interviewed:** Jutarat Puttarak, Tourist Development**Phone:** 01 788 6706**Email:** prpatong@yahoo.com, www.patongmunicipality.org**Questions:**

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If not, ask the following:		
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• Number of families	See attached	
• Male/Female breakdown		
• Age breakdown		
• Affected sub-districts and villages		
• Number of deaths		
• Number of injuries		
• Number of missing persons		
B. Livelihoods Affected:		
• Fisheries (crab, shrimp, shellfish farms)		
• Boats		
• Agriculture (farming, crops affected)		
• Tourism		
• Other		
How has the district been handling general long-term tsunami relief and redevelopment within their jurisdiction? Ex. Do they have recovery programs, projects?		

Long Term		
<p>A team of people and equipment has been compiled to act as a rescue team in the event of a future disaster. This includes a doctor, volunteers, engineers and rescue/communication equipment.</p> <p>Plans exist to install 3 tsunami warning systems</p> <p>Planning to practice escape drills twice yearly with Patong residents</p>		
What tsunami-affected areas are still in need of water and sanitation assistance:	Water	Sanitation
<ul style="list-style-type: none"> Villages 	<p>No problems. The villages have water from 3 sources:</p> <ol style="list-style-type: none"> 1. Water from the mountains fed through PVC pipes. 2. Water from the Provincial Waterworks Authority. During the dry season access to this water is often restricted to a few hours a day. 3. A reservoir. 	
<ul style="list-style-type: none"> Temporary camps 		
<ul style="list-style-type: none"> New permanent housing 		
<ul style="list-style-type: none"> Schools 		
<ul style="list-style-type: none"> Preschools / Kindergarten 	Municipal Pre-School Patong – needs bathrooms and water storage (see separate school form)	
<ul style="list-style-type: none"> Health facilities 		
Do affected villages have water committees?	Yes	No
		X
Who is the key contact for committee (ex. Village head)?		
-		

Are village households required to pay monthly water tariffs? (ex. Does each household pay for metered water consumption on top of flat rates for well/borehole electricity?)		
Villagers pay the Provincial Waterworks Authority by meter per unit. During the dry season some hotels buy water from Muang and Kathu Districts.		
How many children attend each affected school (remember – can be “affected” if children’s homes were lost, parents’ livelihoods affected, or one or both parents died in tsunami, etc)		
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What other needs do these groups have that haven’t been addressed yet?		
-		
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Aid organizations: names, projects, locations?		
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Are SAOs or other government agencies (ex. MENR, provincial authorities) working in wat/san sector in tsunami-affected districts?	Yes	No
		X
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All work was completed by the local government; no NGOs were responsible for any of the recovery work in the area.		

**D-TRAC Water and Sanitation Checklist
SCHOOL**

Province: Phuket

Date: 15/06/2006

School Name: Ban Kathu School

Location : Kathu, Moo 2, Kathu, Kathu

GPS Coordinates: 47 N 0427775, UTM 0874624

Name and Title of Person Interviewed: Sayen Ongborrukkul, Director

Phone: 076-321 035 or 09-650 6339

Other Contact Information: -

Questions:

How many children attend the school? How many boys, girls, teachers?
What are their ages?

- 101 students (54 boys, 47 girls) ages 7-12
- 7 teachers

How did the tsunami affect the school? Were children's homes damaged or parents' livelihoods affected? Explain.

- Many parent's livelihoods were destroyed through the destruction of beach-side stalls, hotels, vehicles etc.
- 20 children were orphaned by the tsunami.

What is your source of water? Well, borehole, rainwater catchments, SAO deliveries? Explain.

Water is provided by the Provincial Waterworks Authority and is sourced from the Bang Wad Dam. This is used for both washing and drinking (after being passed through a filter).

Are there any broken water pumps, wells, pipes, etc, that are preventing you from having a reliable source of water?

- PVC pipes are buried underground so the school is unable to tell where there is damage until a leak occurs.
- The pipes/taps which connect the eight concrete rainwater catchment tanks do not work so only one tank in each set of four is usable.
- The school has 4 further concrete tanks located at the front of the school which are old and leaking and therefore unusable.
- The drainpipes (made from corrugated iron) which collect water from the roofs have many large holes caused by rust.

How do you get water in the dry season?

There is no problem with water supply during the dry season.

Do you know how deep your well is?

There is a borehole (which has been out of use for many years). The water this supplied was too dirty and salty to use so they are not asking for this to be repaired since their water supply from the dam is sufficient.
What is the well's water table?
-
How much deeper do you have to dig to reach water?
-
How many toilets and sinks does the school currently have? What is the condition of the facilities?
<ul style="list-style-type: none"> ○ There are two international toilets and two urinals used by the pre-school students. The pipes which provide these with water are blocked causing the toilets to be dirty and unsanitary. The school would like these to be replaced with Thai-style squat toilets. There are four sinks with one tap (faucet) each which are in good working order. ○ There are two very old Thai-style bathrooms used by the 5-11 year old students. Both are in need of repair. The sink in the bathroom is completely broken and has no water supply; this needs to be replaced. ○ The teacher's bathroom is Thai-style and functional but in need of repair due to old age. ○ The floors of all bathrooms have cracks which allow dirty water to collect. These need to be repaired. ○ Most of the toilet seats and bathroom doors are broken and in need of replacement. The Thai-style bathrooms are also in need of general redecoration. ○ There are four additional toilets which are completely blocked and closed off for use because of damages.
Where are the toilets located? Sinks located?
The toilets and sinks were located at the rear of the school.
Do the toilets, sinks, and pipes work? Anything broken or need replacing?
<ul style="list-style-type: none"> ○ The two international toilets used by the pre-school children do not work and need to be replaced with thai-style toilets. ○ The two thai-style toilets used by the older students and the teacher's toilet are functional but very old and in need of replacement. The sink is completely damaged and needs to be replaced and fitted with working taps. These bathrooms are also in need of general redecoration. ○ The floors of all bathrooms need to be repaired to prevent the accumulation of dirty standing water. ○ There are four further toilets which are completely closed off. These toilets are functional but were being damaged by villagers who used the school grounds for sport. The toilets are very dirty and although the sinks are in good condition, the taps have been stolen. These bathrooms need to be repaired and the taps need to be replaced. ○ There are three sinks located in the science classroom. Two of the taps are completely broken. The pipes which supply the sinks with

water are also damaged. All three sinks need to be repaired and the pipes replaced.
What do you need to improve the school's water system? Ex. – pipelines, water tanks, wells, boreholes, etc?
<ul style="list-style-type: none"> ○ The PVC pipes which provide water to the bathrooms and the pipes leading to the science room need to be replaced. A 30m section of the PVC pipes underneath the school is leaking. These pipes need to be replaced also. ○ The pipes and taps connecting the 2 sets of 4 rainwater catchment tanks (8 in total) need to be repaired to allow all tanks to be used for water storage. There are two rainwater catchment tanks located in the front of the school that are in need of repair due to old age. ○ Improved drainage is required to reduce areas of standing water.
Are storm water drains kept clear?
Yes
Do buildings, paths or roads experience flooding?
Yes, after heavy rainfall approximately 6 inches of water collects around the steps at the front of the school. This water remains there for at least half a day. Improved drainage is required to clear this water.
Is drainage water polluting existing surface/groundwater or causing erosion?
No. The cement drainage pipes are generally sufficient to carry away waste water.
Where does wastewater go and is it treated in any way?
Waste water is carried away by cement drainage pipes and joins the village drainage system.
Where does solid waste go? How is it managed?
<ul style="list-style-type: none"> ○ The old bathrooms (for teachers and older students) have cement septic tanks. If the bathrooms were to be replaced they would like new plastic septic tanks to be fitted. ○ The pre-school bathroom has a fully functional plastic septic tank. ○ The tanks are emptied by the municipal septic tank service.
Does the school have access to incinerators or does it have a garbage pickup?

- Garbage is collected by the municipal garbage collection service and taken to local incinerators.
- Some food waste (eg. tea leaves) is used as fertilizer for plants.
- The school has a sufficient number of garbage bins.

Does the school have a recycling program?

- The school is running a recycling program called LCA (Life Cycle Assessment).
- This works on the principles of re-use, repair, recycle, refill and reject.
- It is hoped that this initiative will be adopted by more local schools.

Have any other organizations provided water and sanitation assistance for the school? Have they provided toilets, water tanks, sinks, a drainage system, etc? Has anything else been donated?

- AmWay (a private company) gave the school two 1,000 liters water storage tanks two years ago.
- Siam Commercial Bank donated one storage tank 8 years ago.

**D-TRAC Water and Sanitation Checklist
SCHOOL**

Province: Phuket

Date: 15/06/2006

School Name: Ban Thung Thong School

Location: Ban Thung Thong, Moo 7, Kathu, Kathu

GPS Coordinates: 47 N 0427215, UTM 0873064

Name and Title of Person Interviewed: Amnuy Paleeracha, Director

Phone: 076-321 034 or 09-652 3137

Other Contact Information: -

Questions:

How many children attend the school? How many boys, girls, teachers? What are their ages?
<ul style="list-style-type: none"> ○ 218 students (121 boys, 97 girls) ages 5-12 ○ 10 teachers
How did the tsunami affect the school? Were children's homes damaged or parents' livelihoods affected? Explain.
<ul style="list-style-type: none"> ○ The livelihoods of many parents were lost through the destruction of shops, hotels etc. ○ One child lost a parent in the disaster and received counseling from the Phuket Catholic Society.
What is your source of water? Well, borehole, rainwater catchments, SAO deliveries? Explain.
The school has two wells. One for the school and one for the community center (built within the school grounds)
Are there any broken water pumps, wells, pipes, etc, that are preventing you from having a reliable source of water?
Water is carried from the well to the bathrooms/school by PVC pipes. These are known to be damaged in many places.
How do you get water in the dry season?
During the dry season the school is still able to obtain sufficient water from the well.
Do you know how deep your well is?
The well (used by the school) is 10 meters deep.
What is the well's water table?
7 meters deep
How much deeper do you have to dig to reach water?

-
How many toilets and sinks does the school currently have? What is the condition of the facilities?
<ul style="list-style-type: none"> ○ There are 9 toilets for use by students and 1 for teachers. All of these have been recently replaced and are in a satisfactory condition. ○ There is a sink in the teacher's bathroom with one tap (faucet). This is in good condition. ○ A large sink at the front of the school has 12 taps of which only 5 are working. However, all 5 of the working taps leak badly and need to be repaired. ○ Another sink has 6 taps which are all working.
Where are the toilets located? Sinks located?
<ul style="list-style-type: none"> ○ 5 student toilets are located in a block behind the school. 4 others are inside the school on the ground floor. ○ The large sink (12 taps) is located in front of the school. The sink with 6 taps is behind the cafeteria.
Do the toilets, sinks, and pipes work? Anything broken or need replacing?
<ul style="list-style-type: none"> ○ The bathrooms and toilets have been recently repaired and in a good condition. ○ The large sink at the front of the school has many faulty taps which need to be completely replaced. ○ The damaged PVC pipes need to be replaced to ensure a reliable water supply to the bathrooms. ○ The large community centre built with funds from the SAO has no bathrooms at all. The school would like a bathroom to be built with 4 toilets and 2 sinks. All associated pipes/storage would also be required.
What do you need to improve the school's water system? Ex. – pipelines, water tanks, wells, boreholes, etc?
<ul style="list-style-type: none"> ○ Water storage facilities are currently sufficient for the school's needs. ○ The community centre built by the SAO has no bathrooms. Pipes and water storage would be needed if bathrooms were to be installed.
Are stormwater drains kept clear?
Yes
Do buildings, paths or roads experience flooding?
There are no great problems with flooding. After rainfall some areas of standing water form. These are generally only present for a few hours.
Is drainage water polluting existing surface/groundwater or causing erosion?
<ul style="list-style-type: none"> ○ There are no problems with the pollution of groundwater because the well and water table are very deep. ○ Drainage water is carried away effectively by municipal drains.

Where does wastewater go and is it treated in any way?
Cement drains carry waste-water to the public drainage system. This water either flows into the canal or is treated at the municipal water treatment center.
Where does solid waste go? How is it managed?
The school has two septic tanks, one for waste-water and one for solid waste. Once full these are emptied by the municipal septic tank service.
Does the school have access to incinerators or does it have a garbage pickup?
<ul style="list-style-type: none"> ○ Garbage is collected by the municipal refuse-collection and taken to an incinerator. ○ The school would like a further 3-5 garbage bins.
Does the school have a recycling program?
No recycling program is currently in place, though the school and the SAO have plans to install a recycling bank in the school grounds.
Have any other organizations provided water and sanitation assistance for the school? Have they provided toilets, water tanks, sinks, a drainage system, etc? Has anything else been donated?
<ul style="list-style-type: none"> ○ Amway donated two water storage tanks. ○ Siam Commercial Bank donated one storage tank. ○ The local SAO gave money to the school in 1999 to improve water drainage.

Notes / Observations

This school was recommended to us by Asia Center Foundation. The Foundation also has a child learning center on the same campus grounds as Ban Thung Thong School.

A P P E N D I X II

Water and Sanitation Needs Assessment

Muang District

Introduction

The data and figures in this appendix have been translated from documents gathered in visits to provincial, district and sub-district offices, as well as villages. The original documents can be made available on request.

We have included our survey checklists as a matter of completeness and consistency. Empty fields in our checklists imply that the question has been answered by documents from a government office or village.

Water Resources Budget - Supported by other Organizations

Funds Provided from Princess Sirintorn

No	School	Budget	Remark
1	Banya Nukul School	173,370	Installed rain gutter, Repaired reservoir.
2	Nong Yok Bumrung School	30,000	Constructed rain gutters
3	Baan Sah Kool School	17,900	Adapting the system
4	Tah Chat Chai School	66,954	Rain gutters, water pipes

Funds Provided the Thai Red Cross and Phuket Red Cross

No	School	Budget	Remark
1	Thai Rat Withaya School	42,000	
2	Hong Yok Bumrung School	1,200,000	
3	Baan Sah Kool School	605,000	
4	Baa Klok Scool	580,000	
5	Sai Nam Yen School	200,000	
6	Thalang School	200,000	
7	Banya Bukul School	405,000	

Funds Provided by the Thai Red Cross and the IFRC

1	School	Budget	Remark
1	Thai Rat Wathaya School	40,000	
2	Baan Sah Kool School	60,000	
3	Sai Nam Yen	130,000	

Report on the Progress of Construction and Repair Phuket Provincial Education Office

Last Update: August 29, 2005

No	School	Progress of Construction	Remark
1	Ratchpracha Nu khoh 36	1. School Building 216 / 41 - Framing the 3 rd floor - Roof structure and roof - Office supplies and equipment - Electricity and water	
		2. Dormitory - roof beams, flooring and 3 story pillars. - Pillar, roof beams, and roof patio flooring - Roof structure and Roof - Wall, window and door frames installation - Wall, window and door frames installation - Electricity, water supply and bathroom fixtures. - Plastering and interior finishing	
		3. Conference Hall - Cafeteria - First Floor pillars and Flooring - 2 nd floor beams, stairs	
		4. Dormitory - Demolish old structure and prepare construction areas. - Pile pounding, foundations laying - Building beams, floors and 1 st floor pillars	
2	Baan Ka Lim	1. Construction by Chore Kan Chang .Ltd	
		2. Foundation piles drilled estimate 30 piles (developed problems at 8 meters depth where they struck coral and rocks. This delayed finishing the project)	
3	Tah Chat Chai	1. Construction completed	
		2. Last payment completed	
4	Nai Thon	Repaired the buildings and improved the views from the building	
5	Banya Nukul	1. Repaired janitors houses, a total of 3 houses	
		2. Painted the Conference Hall	

Schools in need of Toilets and Bathrooms

Provincial Education Office

1. Koh Nah Kah School
2. Baan Bang Tao School
3. Baan Kathu School
4. Koh Maprow School Village 6, Koh Keaw , Muang
5. Hong Yok Bumrung School (needs toilets - bathrooms)
6. Koh Loan School (need 2 toilets repaired) Village 3,
Rawai, Muang
7. Kata "Treetod Yuttha Uppatom" School (broken toilets and lack water)

List of Schools without Sinks

1. Baan Lam Sai School
2. Baan Bang Tao School
3. Baan Kok Wat Mai School

Schools Needing Improvements to their Water Systems

No.	School Name	Problems
1.	Baan Kok Wat Mai School	Lacking water and storage tanks
		All storage tanks and sinks are broken
2.	Baan Lam Sai School	Lacking water, no storage tanks or sinks
3.	Baan Koh Nah Kah School	No storage tanks or pipe system
4.	Baan Kata (Treetod Yuttha Uppatom School)	Insufficient water. Must get water from municipal fire truck. If the municipality uses a lot of water then water is not sent to the school. The school has no water storage tanks
5.	Wat Mong Klom Wararam School	No water tower
6.	Baan Liporn School	Need to connect pipes for the school water system
7.	Koh Loan School	Need to connect pipes for school water system and need sinks
8.	Koh Maprow School	Lacking water tanks and water system throughout the school
9.	Baan Bang Tao School	Lacking storage tanks and sinks
10.	Pra Nang Sang School	Need water system in the school
11.	Baan Bang Rong School	Needs water filter for drinking water
12.	Wat Muang Mai School	Water storage tanks

Information of Tsunami-Affected Students

No.	School Name	High Damaged	Medium Damaged	Low Damaged	Total
1	Kathu Withaya	11	44	3	58
2	Ganjanawat Withaya	2	7	-	9
3	Koh Si Reh	2	-	179	181
4	Koh Lone	1	3	-	4
5	Kajongiet Suksa	15	72	-	87
6	Cha Lerm Pra Giet Somdej PraSriNakariri	8	50	3	61
7	Cheung Ta Lay Withaya Kom	23	10	-	33
8	Darasamut Phuket	39	61	7	107
9	Dao Rung Withaya	5	53	-	58
10	Thalang Withaya	5	6	-	11
11	Tah Chat Chai	7	11	-	18
12	Thai Rat Withaya 20	1	-	-	1
13	International QSI	1	-	-	1
14	SBAC	9	11	-	20
15	Baan Kamala	27	22	-	49
16	Baan Kalim	12	15	-	27
17	Baan Get Ho	1	-	-	1
18	Baan Chalong	2	14	-	16
19	Baan Cheung Ta Lay (Tantiwit)	4	-	2	6
20	Baan Ta Lad Nua (Wan Kru 2502)	2	2	-	4
21	Baan Thung Ka "Bunya Kajorn Pracha Asa	-	5	-	5
22	Baan Na Born	1	14	-	15
23	Baan Bang Tao	65	34	15	114
24	Baan Baa Klok	-	-	2	2
25	Baan Ma Nik	1	-	-	1
26	Baan Sa Pum (Mongkol Withaya)	-	75	1	76
27	Baan Sah Kool	2	-	11	13
28	Baan Sai Nam Yen	5	4	-	9
29	Baan Mak Prok	1	-	-	1
30	Baan Ao Nam Por	3	15	3	21
31	Baan Ao Por	-	25	-	25
32	Pibul Sawasdee	4	12	4	20
33	Putta Monkol Nimit	14	31	1	48
34	Phuket Technology	35	86	-	121
35	Phuket Thai Hua	4	19	3	26
36	Phuket Panya Nukul	-	2	-	2

37	Phuket Withayalai	12	166	17	195
38	Muslim Withaya Phuket	12	7	-	19
39	Muang Thalang	18	63	-	81
40	Muang Phuket	18	46	-	64
41	Wat ThepKrasatri	7	-	-	7
42	Wat Thep Nimit	4	6	2	12
43	Wat Monkol Wararam	-	41	1	42
44	Wat Lattiwaram	1	11	23	35
45	Wat Srisunthorn	-	1	-	1
46	Wat Sawang Arom	-	71	-	71
47	Wat Suwan Keereewong	6	63	-	69
48	Wichit Songkram	2	4	-	6
49	Withaya Sa Thit	3	35	-	38
50	Weera Satri Anusorn	-	1	2	3
51	Special Education Centre	-	1	-	1
52	Satree Phuket	21	120	5	146
53	Hong Yok Bumrung	-	11	2	13
54	Laem Panwa	-	3	-	3
55	Kanok Kwan Nursery	1	3	-	4
56	Ganjanawat Withaya Nursery	1	-	-	1
57	Thalang Withaya Nursery	-	2	-	2
58	Phuket Nursery	10	25	15	50
59	Phuket Gul Thida Nursery	-	6	-	6
60	Muslim Phuket Nursery	14	8	-	22
61	Baan Tah Rua	-	1	-	1
Total		442	1398	301	2141

Contact Details for Schools in Phuket

June 10, 2004

School Name: Koh Maprow School
 Tel : -
 Address: village 6, Koh Keaw, Muang, Phuket, 83200
 Website : <http://school.obec.go.th/kppr>
 E-mail : nongjeab23@hotmail.com
 School Code: 83100234
 EIS Code: 004
 Director: Adun Suntaruk
 Mobile: 09-94741507

	Male	Female	Total
Students	30	39	69
Teachers	2	3	5

School Name: Koh Si Rae School
 Tel : 076 217 7423
 Fax : 076 217 7423
 Address: Thep Prathan Road, Village 1, Radsada, Muang, Phuket 83000
 Website : [http:// school.obec.go.th/kohsirae](http://school.obec.go.th/kohsirae)
 E-mail : somkid_kuankid@hotmail.com
 School Code: 83100246
 EIS Code: 005
 Director: Pramuk Tan Jumroon
 Mobile: 01 693 9877

	Male	Female	Total
Students	433	407	840
Teachers	9	15	24

School Name: Koh Lone School
 Tel : -
 Address: Village 3, Rawai, Muang, Phuket 83130
 Website : [http:// school.obec.go.th/kohlone](http://school.obec.go.th/kohlone)
 E-mail : pjamsard@yahoo.com
 School Code: 83100258
 EIS Code: 006
 Director: Chook Thumpanit
 Mobile: 09 866 7371

	Male	Female	Total
Students	4	4	8
Teachers	2	0	2

School Name: Baan Kata School (Treetod Yuttha Uppatom)
 Tel : 076 330 663
 Fax : 076 330 663
 Address: 9/6 Kok Tanod Road, Karon, Muang, Phuket 83000
 Website : [http:// school.obec.go.th/bankata](http://school.obec.go.th/bankata)
 E-mail : bankataschool@chaiya.com
 School Code: 83100260
 EIS Code: 007
 Director: Bunchoo Maanaseri
 Mobile: 06 274 9289

	Male	Female	Total
Students	110	86	196
Teachers	3	6	9

School Name: Baan Kathu School
 Tel : 076 321 035
 Address: Vichit Song Kram Road, Village 2, Kathu, Kathu, Phuket 83120
 Website : [http:// school.obec.go.th/bankathu](http://school.obec.go.th/bankathu)
 E-mail : chaleam@hunsa.com
 School Code: 83100465
 EIS Code: 004
 Director: Sahyan Ong Borirak Kul,
 Mobile: 09 650 6339

	Male	Female	Total
Students	42	47	89
Teachers	2	5	7

School Name: Baan Kalim School
 Tel : 076 342 606
 Address: 306 Pra Baramee Road, Village 5, Patong, Kathu, Phuket 83150
 Website : [http:// school.obec.go.th/bankalim](http://school.obec.go.th/bankalim)
 E-mail : baankalim@hunsa.com
 School Code: 83100477
 EIS Code: 005
 Director: -
 Mobile: -

	Male	Female	Total
Students	58	54	112
Teachers	2	1	3

School Name: Baan Koh Nah Kah School
 Tel : 076 223 125
 Address: Village 5, Pa Klog, Thalang, Phuket 83110
 Website : [http:// school.obec.go.th/nakaschool](http://school.obec.go.th/nakaschool)
 E-mail : nakaschool@hotmail.com
 School Code: 83100532
 EIS Code: 004
 Director: Paisarn Chairab
 Mobile: 09 725 0099

	Male	Female	Total
Students	8	10	18
Teachers	2	0	2

School Name: Baan Khok Wat Mai
 Tel : 076 313 970
 Address: Village 2, Khanan, Thepkasattree, Thalang, Phuket 83110
 Website : [http:// school.obec.go.th/bankhok](http://school.obec.go.th/bankhok)
 E-mail : rung_narok@yahoo.com
 School Code: 83100570
 EIS Code: 008
 Director: Thawat Apinun
 Mobile: 01 779 7320

	Male	Female	Total
Students	46	41	87
Teachers	1	5	6

School Name: Baan Bang Tao School
 Tel : 076 324 314
 Fax : 076 324 314
 Address: 103 Srisunthon Road, Cheang Talay, Thalang, Phuket 83110
 Website : [http:// school.obec.go.th/banbangtao](http://school.obec.go.th/banbangtao)
 E-mail : banbangtao@hotmail.com
 School Code: 83100611
 EIS Code: 012
 Director: Channarong Nookong
 Mobile: 01 958 0953

	Male	Female	Total
Students	552	462	1,014
Teachers	8	20	28

School Name: Baan Bang Rong School
 Tel : 076 260 502
 Address: Village 3 Pa Klog, Thalang, Phuket 83110
 Website : [http:// school.obec.go.th/banrong](http://school.obec.go.th/banrong)
 E-mail : banbangrong@yahoo.com
 School Code: 83100623
 EIS Code: 013
 Director: Bumrung Palaput
 Mobile: 07 277 4623

	Male	Female	Total
Students	86	90	176
Teachers	3	3	6

School Name: Baan Lipon School
 Tel : 076 311 677
 Address: Thepkasattree Road, Srisuthon, Thalang, Phuket 83120
 Website : [http:// school.obec.go.th/banlipon](http://school.obec.go.th/banlipon)
 E-mail : banlipon@hunsa.com
 School Code: 83100696
 EIS Code: 020
 Director: Suthep Wetchakun
 Mobile: 09 909 2253

	Male	Female	Total
Students	52	50	102
Teachers	2	5	7

School Name: Baan Laem Sai School
 Tel : 076 223 050
 Address: Village 6, Thepkasattree, Thalang, Phuket 83130
 Website : [http:// school.obec.go.th/banlaemsai](http://school.obec.go.th/banlaemsai)
 E-mail : banlaemsai@hunsa.com
 School Code: 83100726
 EIS Code: 023
 Director: Suwat Goysomboon
 Mobile: 06 682 9396

	Male	Female	Total
Students	19	25	44
Teachers	2	0	2

School Name: Wat Muang Mai School
 Tel : 076 327 470
 Address: Village 5, Thepkasattree, Thalang, Phuket 83110
 Website : [http:// school.obec.go.th/watmangmai](http://school.obec.go.th/watmangmai)
 E-mail : watmangmai@hunsa.com
 School Code: 83100763
 EIS Code: 027
 Director: Sakorn Yenjid
 Mobile: 09 867 6398

	Male	Female	Total
Students	106	89	195
Teachers	2	4	6

School Name: Hong Yok Bumrung School
 Tel : 076 206 572
 Address: Village 3, Mai Khaw, Thalang, Phuket, 83140
 Website : [http:// school.obec.go.th/hongyok](http://school.obec.go.th/hongyok)
 E-mail : rukcom41@hotmail.com
 School Code: 83100799
 EIS Code: 030
 Director: Aunnop Hiran
 Mobile: 09 646 2660

	Male	Female	Total
Students	298	267	565
Teachers	5	15	20

**D-TRAC Water and Sanitation Checklist
SUB-DISTRICT OFFICE**

Province: Phuket

Date: 13/06/2006

Location: Phuket Provincial Education Office, Muang District

Name and Title of Person Interviewed: Chalam Attatham, Deputy Director

Phone: 076-211 591

Email: chalmat@hotmail.com

Questions:

	Yes	No
Do they have a printout of general statistics on their tsunami-affected sub-district?		X
If not, ask the following:		
A. Population Affected:		
• Number of families	Unknown (since the office deals only with children in the local education system)	
• Male/Female breakdown		
• Age breakdown	63 local schools were directly or indirectly affected by the tsunami. A total of 2,385 children attend these schools.	
• Affected villages		
• Number of deaths	17 students and 2 teachers were killed. 104 children were orphaned by the disaster.	
• Number of injuries		
• Number of missing persons		
B. Livelihoods Affected:		
• Fisheries (crab, shrimp, shellfish farms)	The parents of some of the children surveyed were employed in the fishing industry and therefore directly affected by the tsunami.	
• Boats		
• Agriculture (farming, crops affected)		

<ul style="list-style-type: none"> • Tourism 	<p>Many parents lost their jobs because the tsunami destroyed the hotels in which they worked.</p>
<ul style="list-style-type: none"> • Other 	
<p>How has the sub-district been handling general long-term tsunami relief and redevelopment within their jurisdiction? Ex. Do they have recovery programs, projects?</p>	
<p>Short Term</p> <ul style="list-style-type: none"> • 6 local schools were turned into centers to house and care for survivors of the tsunami (providing medical care, food supplies etc.). These centers were also responsible for the short-term distribution of supplies to local people affected by the tsunami. <p>Mid Term</p> <ul style="list-style-type: none"> • 2,385 tsunami-affected students were given 15,000B each. (project completed by the end of 2005) • In May 2006 there was a meeting with many NGO's to source funding for the students of the 63 affected schools. Eg. For books, school bags etc. This was successfully accomplished. <p>Long term</p> <ul style="list-style-type: none"> • 104 orphans have received scholarships which will ensure their education to university level. • Providing physical help to the 5 directly-affected schools (Ratchaprachanukroe 36 Phuket, Ban Ka Lim, Tah Chat Chai, Ban Nai Tom & Phuket Panyanukul). For example, providing structural building plans to ensure that the new schools are built in a tsunami-proof way. This work is ongoing. • Personal Health Project This project encompasses five main areas: deaths, mental health, education, risk assessment and an IT centre. <p><u>Deaths</u></p> <ul style="list-style-type: none"> - Surveys were made of the population to assess those who were affected by family deaths: - 10,000B was given to each of the families of the 17 students who were killed - 104 orphans were given 15,000B each. Funding was also found (from NGO's and the government) to provide an education for all orphans to university level. - Two teachers were killed and their families received 100,000B <p>Mental Health</p> <p>Teachers were asked to produce case studies of children displaying potential behavioral or mental health problems as a result of the tsunami. These students then received help (in the form of</p>	

<p>counseling) from both the local government and NGO's such as Unicef and The Child Protection Agency</p> <p>Education incorporating tsunami education into the school syllabus</p> <p>Mapping and risk assessment of schools in high-risk areas. Assessing which schools would be at risk in the event of another disaster and providing warning systems (with regular drills).</p> <p>IT Centre Based at Satee Phuket School, the centre provides students with the opportunities to learn about tsunami using the internet.</p>		
What tsunami-affected areas are still in need of water and sanitation assistance:	Water	Sanitation
• Villages		
• Temporary camps		
Continued... Needs:	Water	Sanitation
• New permanent housing		
• Schools		See attached
• Preschools / Kindergarten		
• Health facilities		
Do affected villages have water committees?	Yes	No
Who is the key contact for committee (ex. Village head)?		
Are village households required to pay monthly water tariffs? (ex. Does each household pay for metered water consumption on top of flat rates for well/borehole electricity?)		
How many children attend each affected school / preschool (remember – can be “affected” if children’s homes were lost, parents’ livelihoods affected, or one or both parents died in tsunami, etc)		

63 schools with a total of 2,385 students were affected by the tsunami. 104 children were orphaned.
How many toilets and sinks are in each affected school / preschool? Are they in working order?
Does the sub-district office know of other aid organizations already working in the wat/san sector in their district?
Yes, they know of aid organizations working in their district (see next question)
Aid organizations: names, projects, locations?
<p>The Princess Foundation</p> <p>Phuket Phanya Nukul School – installed a rainwater catchment system, repaired sinks.</p> <p>Hong Yok Bam Luang School - installed a rainwater catchment system. Ban Sa Ku School.</p> <p>Tah Chat Chai School - installed a rainwater catchment system. Installed PVC pipes to supply water.</p> <p>Thai Red Cross and Red Cross Phuket Province</p> <p>Helped 7 schools:</p> <p>Thai Rat Wittaya – 42,000 B Hong Yok Bam Luang – 1,200,000 B Ban Saku – 605,000 B Ban Bah Kok – 580,000 B Ban Sai Nam Yen – 200,000 B Muang Thalang – 200,000 B Phuket Phanya Nukul School – 405,000 B</p> <p>Thai Red Cross & IFRC</p> <p>Donated the following funds to villages: Thai Rat Wittaya – 40,000 B Ban Saku – 60,000 B Ban Sai Nam Yen – 130,000 B</p>
Is there standing water in the villages (i.e. puddles, pools of water)?
Are stormwater drains kept clear in villages / schools / preschools?

Do homes / school grounds, paths or roads experience flooding?
Is drainage water polluting existing surface/groundwater or causing erosion in villages, around schools?
Where does wastewater from villages / schools go and is it treated in any way?
What other needs do these groups have that haven't been addressed yet?

D-TRAC Water and Sanitation Checklist
VILLAGE

Province: Phuket**Date:** 14/06/2006**Location:** Sea Gypsy Village, Laem Tukkae, Moo 4, Rat Sah Dah Sub-district, Muang District**GPS:** 47 N 0436510, UTM 0870576**Name and Title of Person Interviewed:** Ms Nid Pra Mung Kit, Head of Village**Phone:** 09-291 0537**Other Contact Information:****Questions:**

How did the tsunami affect your village? Were homes or fisheries destroyed? Did villagers lose their jobs?

9 houses were destroyed
267 homes were partially destroyed
Many people's private belongings were damaged/lost
60 boats and engines damaged
No deaths, unknown number of minor injuries

The village has approximately 1780 residents (based on pre-tsunami data):
300 children
700 men
700 women
60 elderly people
20 disabled people

What is your source of water? Well, mountain, borehole, SAO? Explain.

Water is sourced from Bang Wad Damn.
This is municipal and is provided on a per unit basis via a meter.
The village buys drinking water from private sources.

Do village homes use rainwater catchments? Water storage containers?

Many houses have rain water catchments in the form of corrugated iron roof troughs, cement tanks, plastic water butts etc.
Some homes have plastic drainpipes to collect rainwater from rooves but this is too expensive for most (over 200B per metre).
275 homes were given plastic water butts by World Vision shortly after the tsunami.

Are there any broken water pumps, wells, pipes, etc, that are preventing you from having a reliable source of water?

No

How do you get water in the dry season?

The village buys water from private sources during the dry season (approximately 12B for 60 liters or 100B to fill a large cement tank).

Do you have a water committee?

Yes

No

		X
Who is the committee's contact person? (Ask if we can speak to him/her.)		
Are households required to pay monthly water tariffs (fees)?	Yes	No
	X	
If Yes, how do they pay? Ex. Each household pays for metered water consumption on top of flat rates for well/borehole electricity.		
Villagers pay per unit via a meter.		
Do you know how deep your well is?		
-		
What is the well's water table?		
-		
How much deeper do you have to dig to reach water?		
-		
What do you need to improve the village or school's water system? Ex. – pipelines, water tanks, wells, boreholes, etc?		
<p>The village currently has 46 communal toilets in two communal bathrooms.</p> <p>The first block has 36 toilets and is in a very poor state. Many toilet doors and seats are broken. The worst problem here is that the septic tanks are full to capacity. This means that the toilets are currently out of use.</p> <p>The second communal bathroom has 10 toilets. Many of these have broken doors and damaged toilets.</p> <p>12 individual outhouse toilets are located over the lake but are extremely old, unstable and unsanitary (since waste falls straight into the lake). Many of these toilets are also not working and some residents use the area of land around the toilets instead.</p> <p>The village would like to have an individual bathroom and septic tank for each family home. This would mean at least 150 additional toilets and septic tanks would need to be installed.</p>		
Which school do the children attend?		
Koh Sileh School (3-16 years)		
How many students and teachers are at the local school?		
Approximately 200 students		
How many toilets and sinks does the school currently have?		
Not known		
Where are the toilets located? Sinks located?		
Is there standing water in the village? Ex. – puddles, pools of water		
No		
Are stormwater drains kept clear?		
Yes		

Do homes, paths or roads experience flooding?
No
Is drainage water polluting existing surface/groundwater or causing erosion?
Rainwater causes erosion of the sand pathways and roads
Where does wastewater go and is it treated in any way?
Waste water is generally collected by individual households and thrown into the ocean. Waste water from the communal bathrooms is stored in cement septic tanks along with solid waste.
Where does solid waste go? How is it managed?
<p>Solid waste from the toilets over the lake falls directly into the lake.</p> <p>Some homes have personal bathrooms which have cement septic tanks.</p> <p>The communal bathrooms (46 toilets in total) have cement septic tanks which are used for both water and solid waste. The tanks in the larger bathroom are currently full and damaged, making the bathrooms unusable, smelly and a health hazard.</p>
Does the village have access to incinerators or does it have a garbage pickup?
<p>Garbage pickup is provided free of charge by the local municipal refuse collection service.</p> <p>However, this service is unreliable and the frequency of collection varies greatly, causing much rubbish to accumulate regularly.</p> <p>The village needs a further 300 garbage bins to safely store refuse ready for collection.</p>
Does the village have a recycling program?
No
Have any other organizations provided water and sanitation assistance for the school? Have they provided toilets, water tanks, sinks, a drainage system, etc? Has anything else been donated?
<p>World Vision provided 275 plastic water butts to villagers.</p> <p>Choeng Talay Christians provided the village with drinking water for the first two weeks after the tsunami.</p> <p>Habitat for Humanity are building houses with inbuilt bathrooms in the village (see separate NGO survey).</p> <p>No other NGO has provided any ongoing water or sanitation help to the village.</p>

**D-TRAC Water and Sanitation Checklist
SCHOOL**

Province: Phuket**Date:** 14/06/2006**School Name:** Koh Mapraow School**Location :** Koh Mapraow, Moo 6, Koh Keaw Sub-district, Muang District**Name and Title of Person Interviewed:** Adul Suntarak, Director**Phone:** 076-530 009 or 09-474 1507**Other Contact Information:** nongjeab23@hotmail.com**Questions:**

How many children attend the school? How many boys, girls, teachers?
What are their ages?

65 students (25 boys, 40 girls) ages 4-12
20 pre-school students ages 2 ½-3
6 teachers

How did the tsunami affect the school? Were children's homes damaged or
parents' livelihoods affected? Explain.

The school was directly affected by the tsunami. The school flooded and the
water supply was badly affected because the well was filled with salty water.

Much property was damaged directly by the tsunami.

The livelihoods of many parents were badly affected by the tsunami through
the destruction of boats, engines, hotels, vehicles etc.

PVC pipes supplying water to the school were directly damaged by the
tsunami.

What is your source of water? Well, borehole, rainwater catchments, SAO
deliveries? Explain.

Washing/drinking water is sourced from a well in the school grounds. This
water is very salty and unclear.

Are there any broken water pumps, wells, pipes, etc, that are preventing you
from having a reliable source of water?

<p>The underground PVC pipes were damaged by the tsunami and only the section supplying water to the bathroom has been repaired.</p> <p>Water storage tanks were broken during the tsunami and these have not been replaced.</p> <p>The water from the school well is salty and dirty but is still used for washing/drinking by the children.</p>
<p>How do you get water in the dry season?</p>
<p>During the dry season the well still provides sufficient water for washing/drinking. Some children also bring in drinking water from home.</p>
<p>Do you know how deep your well is?</p>
<p>The well is 2.5 meters deep.</p>
<p>What is the well's water table?</p>
<p>The water table is only 50cm below the ground.</p>
<p>How much deeper do you have to dig to reach water?</p>
<p>The school would like the well to be 5m deep to provide cleaner, less-saline water.</p>
<p>How many toilets and sinks does the school currently have? What is the condition of the facilities?</p>
<p>There are 4 toilets and 1 sink (which was damaged by the tsunami and has not been repaired).</p>
<p>Where are the toilets located? Sinks located?</p>
<p>The toilets and sink are located alongside the school.</p>
<p>Do the toilets, sinks, and pipes work? Anything broken or need replacing?</p>

<p>The PVC pipes connecting the well to the bathroom are damaged and need to be properly repaired.</p> <p>The broken sink needs to be replaced.</p> <p>The school would like 4 more toilets, with separate bathrooms for boys, girls and teachers.</p>
<p>What do you need to improve the school's water system? Ex. – pipelines, water tanks, wells, boreholes, etc?</p>
<p>The school requires more water storage.</p> <p>More PVC pipes are required to supply water to the rest of the school building.</p> <p>The well needs to be deepened to ensure a cleaner water supply. The pump used is functional and not in need of repair.</p>
<p>Are stormwater drains kept clear?</p>
<p>No. Drains need to be cleared and possibly replaced with covered drains.</p>
<p>Do buildings, paths or roads experience flooding?</p>
<p>Minor flooding occurs during the rainy season. Water collects outside the classroom and remains for only 20 minutes after rainfall.</p>
<p>Is drainage water polluting existing surface/groundwater or causing erosion?</p>
<p>No. The school has a drainage system (though this needs to be cleared).</p>
<p>Where does wastewater go and is it treated in any way?</p>
<p>Waste water is carried away from the school in cement drains and joins the village drainage system.</p>
<p>Where does solid waste go? How is it managed?</p>
<p>There is a cement septic tank in the bathroom which is emptied when necessary.</p>
<p>Does the school have access to incinerators or does it have a garbage pickup?</p>
<p>The school burns it's own rubbish and has sufficient garbage bins.</p>
<p>Does the school have a recycling program?</p>
<p>No</p>

Have any other organizations provided water and sanitation assistance for the school? Have they provided toilets, water tanks, sinks, a drainage system, etc? Has anything else been donated?

No

**D-TRAC Water and Sanitation Checklist
SCHOOL**

Province: Phuket

Date: 14/06/2006

School Name: Koh Loan School

Location : Koh Loan, Moo 3, Rawai Sub-district, Muang District

Name and Title of Person Interviewed: Chockdee Tammapanid, Director

Phone: 09-866 7313

Other Contact Information:

Email: piamsard@yahoo.com **Website:** <http://wwwschool.obec.co.th/kohlone>

Questions:

How many children attend the school? How many boys, girls, teachers?
What are their ages?

8 students (4 boys, 4 girls) 4-8 years
2 teachers

(Many children were moved from this school by their parents due to a private problem a couple of years ago. The school is hoping that students will soon start to return to the school.

How did the tsunami affect the school? Were children's homes damaged or parents' livelihoods affected? Explain.

The homes of 6-10 of the children (attending the school during the tsunami) were directly damaged by the tsunami.

The homes of 5 families living by the beach were completely destroyed.

Many of the children's parents were fishermen who lost their boats, engines and equipment during the disaster.

There are 80 families in the village.

The schools is only accessible by boat, which takes 15 minutes from Ao Chalong.

What is your source of water? Well, borehole, rainwater catchments, SAO deliveries? Explain.

Water is obtained from a well (which has a pump)

Are there any broken water pumps, wells, pipes, etc, that are preventing you from having a reliable source of water?

The school has 3 broken rainwater catchment tanks. The taps () on these

tanks are broken so they cannot be used to supply water to the bathroom.
How do you get water in the dry season?
The well is not dry during the dry season.
Do you know how deep your well is?
The well is 10 meters deep.
What is the well's water table?
The water table is 5 meters below the ground.
How much deeper do you have to dig to reach water?
NA
How many toilets and sinks does the school currently have? What is the condition of the facilities?
<p>The school has two toilets which have no water supply and are not used. The toilets are also badly blocked.</p> <p>Students have to go to the local mosque to use their toilets.</p> <p>The school has no sinks.</p>
Where are the toilets located? Sinks located?
The toilets are located alongside the school.
Do the toilets, sinks, and pipes work? Anything broken or need replacing?
<p>The toilets are blocked and have no water supply, rendering them useless. Two new bathrooms need to be built to replace the broken ones (unless the damage is repairable)</p> <p>There are no sinks within the school. Ideally two sinks need to be fitted, one for each toilet.</p>
What do you need to improve the school's water system? Ex. – pipelines, water tanks, wells, boreholes, etc?

The two 300 liter rainwater storage tanks are broken/leaking and not used. These need to be repaired and a filter needs to be fitted so that the children can drink the water.

The taps to the tanks need to be repaired to allow a water supply for the bathroom.

The PVC pipes which run from the storage tanks to the bathroom need to be completely replaced.

Are Stormwater drains kept clear?

There are no stormwater drains, just the drainage trenches which were created by the school.

Do buildings, paths or roads experience flooding?

No.

Is drainage water polluting existing surface/groundwater or causing erosion?

No, the school has it's own drainage ditches to carry water away from the school.

Where does wastewater go and is it treated in any way?

Waste water flows to the drainage ditches and is carried away to the ocean.

Where does solid waste go? How is it managed?

There is a cement septic tank in the bathroom (though this is currently not used since the bathrooms are out of order).

Does the school have access to incinerators or does it have a garbage pickup?

The school burns rubbish behind the school.

There are sufficient garbage bins (provided by the SAO).

Does the school have a recycling program?

No.

Have any other organizations provided water and sanitation assistance for the school? Have they provided toilets, water tanks, sinks, a drainage system, etc? Has anything else been donated?

No.

A P P E N D I X III

Water and Sanitation Needs Assessment

Thalang District

Introduction

The data and figures in this appendix have been translated from documents gathered in visits to provincial, district and sub-district offices, as well as villages. The original documents can be made available on request.

We have included our survey checklists as a matter of completeness and consistency. Empty fields in our checklists imply that the question has been answered by documents from a government office or village.

Summary of the Effects of the Tsunami Cheang Talay Sub-district

Cheang Talay Sub-district Administration Office Tsunami Relief Center on January 1 2005

Injuries and Deaths	Number of people
Deaths	27
Injured and admitted to the hospital	150
Injured and received first Aid	200

Damages	Number
Displaced villagers, lacking shelter	1,500
Foreigners without shelter	500
Destroyed houses and shops	304
Destroyed hotels and bungalows	5
Cars	55
Motorcycles	183
Long Tail Boats	80

Summary of the assistance provided by Cheang Talay Sub-district Administration Office Tsunami Assistance Center.

- Distributed necessary items including dried food and household goods
- Provided temporary shelter at Cheang Talay Sub-district Administration Office, Bang Tao Temple, Muu Ganrum Mosque
- Provided first aid
- Transported injured people to hospital.
- Found and transported tourists to temporary housing.
- Provided temporary shelter for local people.

**D-TRAC Water and Sanitation Checklist
SUB-DISTRICT OFFICE**

Province: Phuket**Date:** 16/06/2006**Location:** Choeng Talay SAO, Choeng Talay Sub-district, Thalang District**Name and Title of Person Interviewed:** Rongrit Chaihanan, Senior Engineer 4**Phone:** 01-258 5688 or 04-051 4190 or 076-271 096/7**Email:** chaihanan@yahoo.com or chaihanan@hotmail.com**Questions:**

	Yes	No
Do they have a printout of general statistics on their tsunami-affected sub-district?	X	
If not, ask the following:		
A. Population Affected:		
• Number of families	See attached	
• Male/Female breakdown		
• Age breakdown		
• Affected villages		
• Number of deaths		
• Number of injuries		
• Number of missing persons		
B. Livelihoods Affected:		
• Fisheries (crab, shrimp, shellfish farms)		
• Boats		
• Agriculture (farming, crops affected)		
• Tourism		
• Other		

How has the sub-district been handling general long-term tsunami relief and redevelopment within their jurisdiction? Ex. Do they have recovery programs, projects?		
The Sub-district is mapping areas at high risk in the event of future disasters, providing warning systems and holding evacuation drills.		
What tsunami-affected areas are still in need of water and sanitation assistance:	Water	Sanitation
• Villages	All of the villages in the Choeng Talay Sub-district use water provided by the SAO from a local reservoirs. These reservoirs generally have sufficient water but the quality of the water is too low. A better filtering system (incorporating lime, chlorine etc.) needs to be fitted to each to ensure that water is safe to use.	
• Temporary camps		
Continued... Needs:	Water	Sanitation
• New permanent housing		
• Schools	Ban Bang Tao School – has no water during the dry season.	Ban Bang Tao school needs more toilets.
• Preschools / Kindergarten		
• Health facilities		
Do affected villages have water committees?	Yes	No
	X	
Who is the key contact for committee (ex. Village head)?		

Village Committee: Moo 2 Ban Bang Tao Contact: Mr. Lim Kohgawee
Village Committee: Moo 3 Had Surin Contact: Kohmon Pitiromrak, 01 5398751
Are village households required to pay monthly water tariffs? (ex. Does each household pay for metered water consumption on top of flat rates for well/borehole electricity?)
Villagers pay per unit via a meter, at a cost of 2 Baht per unit.
How many children attend each affected school / preschool (remember – can be “affected” if children’s homes were lost, parents’ livelihoods affected, or one or both parents died in tsunami, etc)
Not known.
How many toilets and sinks are in each affected school / preschool? Are they in working order?
Not known.
Does the sub-district office know of other aid organizations already working in the wat/san sector in their district?
No.
Aid organizations: names, projects, locations?
Is there standing water in the villages (i.e. puddles, pools of water)?
Ao Ban Tao Soi Noklay, Had Surin (Moo 3) – no drainage water system is in place so standing water is a problem.
Are Stormwater drains kept clear in villages / schools / preschools?
Most stormwater drains are kept clear. However, the drains of the following villages are known to be blocked by sand/debris etc.: Bang Tao, Moo2 Had Surin, Moo 3 Bang Tao Nok, Moo 5
Do homes / school grounds, paths or roads experience flooding?

<p>The drainage systems of most villages are not good enough to carry rainwater away quickly enough during the wet season and therefore flooding regularly occurs.</p>
<p>Is drainage water polluting existing surface/groundwater or causing erosion in villages, around schools?</p>
<p>During heavy rainfall much sand and silt flows into the reservoirs making the water unclean. This occurs mostly in:</p> <ul style="list-style-type: none"> Bang Tao, Moo2 – Ai Jud reservoir Had Surin, Moo 3 – Bang La reservoir Pasak, Moo 4 - Wat Rang reservoir Bang Tao Nok, Moo 5 – Koh Kang Cow reservoir
<p>Where does wastewater from villages / schools go and is it treated in any way?</p>
<p>Wastewater is not treated and generally flows via drains to the ocean or canals.</p>
<p>What other needs do these groups have that haven't been addressed yet?</p>
<p>Reservoirs need to be deepened or new boreholes need to be dug to provide more water for the Sub-district.</p> <p>The village needs to improve the quality of water supplied by the reservoirs by installing better filters.</p> <p>The sub-district would like to extend the network of PVC water pipes to supply water to all areas of all villages. Stronger pumps are needed to deliver this water to all areas of the sub-district.</p> <p>Bang Tao (Moo 2) and Had Surin (Moo 3) need more water storage tanks. Ideally they would each have a water tower and an underground water tank with a total capacity of 300 m³.</p>

**D-TRAC Water and Sanitation Checklist
SUB-DISTRICT OFFICE**

Province: Phuket**Date:** 16/06/2006**Location:** Mai Khao SAO, Moo5, Mai Khao Sub-district, Thalang District**Name and Title of Person Interviewed:** Mr. Saravoot Srisakukam, Managing Director**Phone:** 01-979 1361**Email:** david@e-mail.in.th**Questions:**

Do they have a printout of general statistics on their tsunami-affected sub-district?	Yes	No
	X	
If not, ask the following:		
A. Population Affected:		
• Number of families	There are 288 families and a total of 15,000 people in the sub-district.	
• Male/Female breakdown		
• Age breakdown		
• Affected villages	In Mai Khao, Moo 4 and Tah Chat Chai, Moo 5 300 people were directly affected by the tsunami and 50 houses were damaged.	
• Number of deaths	3	
• Number of injuries	10	
• Number of missing persons	0	
B. Livelihoods Affected:		

<ul style="list-style-type: none"> • Fisheries (crab, shrimp, shellfish farms) 	<p>Many fisheries and fishermen were directly affected.</p> <p>Floating farms were damaged</p>	
<ul style="list-style-type: none"> • Boats 	<p>30 boats were damaged.</p>	
<ul style="list-style-type: none"> • Agriculture (farming, crops affected) 		
<ul style="list-style-type: none"> • Tourism 	<p>The local hotel was directly damaged.</p>	
<ul style="list-style-type: none"> • Other 		
<p>How has the sub-district been handling general long-term tsunami relief and redevelopment within their jurisdiction? Ex. Do they have recovery programs, projects?</p>		
<p>The Sub-district has been supporting the livelihoods of local people by providing training in certain occupations (eg. Thai massage) and providing facilities to help people earn a living (eg. a bakery).</p> <p>A tsunami warning system has been installed at Mai Khao (Moo 4). This is working and the villagers have confidence in the system.</p> <p>Mapping of the local regions has been completed to identify areas of high risk, evacuation routes etc.</p>		
<p>What tsunami-affected areas are still in need of water and sanitation assistance:</p>	<p>Water</p>	<p>Sanitation</p>

<ul style="list-style-type: none"> Villages 	<p>Tah Chat Chai, Moo 5 – has a water shortage.</p> <p>All villages use water from the SAO water system and have to buy drinking water. Some families have their own wells.</p>	<p>Thai Mai sub-village, Tah Chat Chai, Moo 5 - 60 families have to use communal bathrooms. Habitat for Humanity are building new houses but these do not include bathrooms. More toilets are needed.</p>
<ul style="list-style-type: none"> Temporary camps 		
<ul style="list-style-type: none"> New permanent housing 		<p>Habitat for Humanity are building 80 new houses though these do not include bathrooms. The water and sanitation needs of the villages are therefore increasing as new families move to the area.</p>
<ul style="list-style-type: none"> Schools 	<p>Tah Chat Chai School – has a water shortage (lack of storage)</p>	<p>Tah Chat Chai School – need more bathrooms</p>
<ul style="list-style-type: none"> Preschools / Kindergarten 	<p>Tah Chat Chai kindergarten – has a water shortage (lack of storage)</p>	<p>Tah Chat Chai kindergarten – need more bathrooms</p>
<ul style="list-style-type: none"> Health facilities 		
Do affected villages have water committees?	Yes	No
	X	
Who is the key contact for committee (ex. Village head)?		
<p>Mr. Sompong Bonsri 01 7876457</p>		
Are village households required to pay monthly water tariffs? (ex. Does each household pay for metered water consumption on top of flat rates for well/borehole electricity?)		

Villagers pay per unit via a meter.
How many children attend each affected school / preschool (remember – can be “affected” if children’s homes were lost, parents’ livelihoods affected, or one or both parents died in tsunami, etc)
Tah Chat Chai School – approximately 300 students and 8 teachers
How many toilets and sinks are in each affected school / preschool? Are they in working order?
Unknown
Does the sub-district office know of other aid organizations already working in the wat/san sector in their district?
Habitat for Humanity – building 80 local houses Plan Thailand – helping improve water facilities at Tah Chat Chai Kindergarten, details not known. The Thai Government – building 24 houses with bathrooms at Tah Chat Chai (Moo 5).
Aid organizations: names, projects, locations?
Is there standing water in the villages (i.e. puddles, pools of water)?
Yes, many puddles and pools form in the villages and Dengue fever is known to be a problem amongst villagers.
Are stormwater drains kept clear in villages / schools / preschools?
Tah Chat Chai School and Tah Chat Chai Village - many drains are either broken or blocked by sand/dirt/debris.
Do homes / school grounds, paths or roads experience flooding?
No
Is drainage water polluting existing surface/groundwater or causing erosion in villages, around schools?
The ocean causes erosion of houses built along the shore.
Where does wastewater from villages / schools go and is it treated in any way?
Wastewater is carried by drains to the ocean.

What other needs do these groups have that haven't been addressed yet?

Rainwater catchment storage tanks are needed at Moo 1, 2, 3, 4 and 5.

Approximately 500 rainwater storage tanks would be sufficient for all of the villages in the sub-district.

The quality of the water system at eth Tah Chat Chai Reservoir needs to be improved to ensure that the water is safe to use.

The SAO would like funds/assistance to help deepen reservoirs and to clear drainage channels.

**D-TRAC Water and Sanitation Checklist
SUB-DISTRICT OFFICE**

Province: Phuket**Date:** 16/06/2006**Location:** SAO Tah Chat Chai, Moo5, Mai Khao Sub-district, Thalang District**Name and Title of Person Interviewed:** Mr. Saravoot Srisakukam, Managing Director**Phone:** 01-979 1361**Email:** david@e-mail.in.th**Questions:**

Do they have a printout of general statistics on their tsunami-affected sub-district?	Yes	No
	X	
If not, ask the following:		
A. Population Affected:		
• Number of families	There are 288 families and a total of 15,000 people in the sub-district.	
• Male/Female breakdown		
• Age breakdown		
• Affected villages	In Mai Khao, Moo 4 and Tah Chat Chai, Moo 5 300 people were directly affected by the tsunami and 50 houses were damaged.	
• Number of deaths	3	
• Number of injuries	10	
• Number of missing persons	0	
B. Livelihoods Affected:		

<ul style="list-style-type: none"> • Fisheries (crab, shrimp, shellfish farms) 	<p>Many fisheries and fishermen were directly affected.</p> <p>Floating farms were damaged</p>	
<ul style="list-style-type: none"> • Boats 	<p>30 boats were damaged.</p>	
<ul style="list-style-type: none"> • Agriculture (farming, crops affected) 		
<ul style="list-style-type: none"> • Tourism 	<p>The local hotel was directly damaged.</p>	
<ul style="list-style-type: none"> • Other 		
<p>How has the sub-district been handling general long-term tsunami relief and redevelopment within their jurisdiction? Ex. Do they have recovery programs, projects?</p>		
<p>The Sub-district has been supporting the livelihoods of local people by providing training in certain occupations (eg. Thai massage) and providing facilities to help people earn a living (eg. a bakery).</p> <p>A tsunami warning system has been installed at Mai Khao (Moo 4). This is working and the villagers have confidence in the system.</p> <p>Mapping of the local regions has been completed to identify areas of high risk, evacuation routes etc.</p>		
<p>What tsunami-affected areas are still in need of water and sanitation assistance:</p>	<p>Water</p>	<p>Sanitation</p>

<ul style="list-style-type: none"> Villages 	<p>Tah Chat Chai, Moo 5 – has a water shortage.</p> <p>All villages use water from the SAO water system and have to buy drinking water. Some families have their own wells.</p>	<p>Thai Mai sub-village, Tah Chat Chai, Moo 5 - 60 families have to use communal bathrooms. Habitat for Humanity are building new houses but these do not include bathrooms. More toilets are needed.</p>
<ul style="list-style-type: none"> Temporary camps 		
<ul style="list-style-type: none"> New permanent housing 		<p>Habitat for Humanity are building 80 new houses though these do not include bathrooms. The water and sanitation needs of the villages are therefore increasing as new families move to the area.</p>
<ul style="list-style-type: none"> Schools 	<p>Tah Chat Chai School – has a water shortage (lack of storage)</p>	<p>Tah Chat Chai School – need more bathrooms</p>
<ul style="list-style-type: none"> Preschools / Kindergarten 	<p>Tah Chat Chai kindergarten – has a water shortage (lack of storage)</p>	<p>Tah Chat Chai kindergarten – need more bathrooms</p>
<ul style="list-style-type: none"> Health facilities 		
Do affected villages have water committees?	Yes	No
	X	
Who is the key contact for committee (ex. Village head)?		
Mr. Sompong Bonsri 01 7876457		

Are village households required to pay monthly water tariffs? (ex. Does each household pay for metered water consumption on top of flat rates for well/borehole electricity?)
Villagers pay per unit via a meter.
How many children attend each affected school / preschool (remember – can be “affected” if children’s homes were lost, parents’ livelihoods affected, or one or both parents died in tsunami, etc)
Tah Chat Chai School – approximately 300 students and 8 teachers
How many toilets and sinks are in each affected school / preschool? Are they in working order?
Unknown
Does the sub-district office know of other aid organizations already working in the wat/san sector in their district?
Habitat for Humanity – building 80 local houses Plan Thailand – helping improve water facilities at Tah Chat Chai Kindergarten, details not known. The Thai Government – building 24 houses with bathrooms at Tah Chat Chai (Moo 5).
Aid organizations: names, projects, locations?
Is there standing water in the villages (i.e. puddles, pools of water)?
Yes, many puddles and pools form in the villages and Dengue fever is known to be a problem amongst villagers.
Are stormwater drains kept clear in villages / schools / preschools?
Tah Chat Chai School and Tah Chat Chai Village - many drains are either broken or blocked by sand/dirt/debris.
Do homes / school grounds, paths or roads experience flooding?
No
Is drainage water polluting existing surface/groundwater or causing erosion in villages, around schools?

The ocean causes erosion of houses built along the shore.

Where does wastewater from villages / schools go and is it treated in any way?

Wastewater is carried by drains to the ocean.

What other needs do these groups have that haven't been addressed yet?

Rainwater catchment storage tanks are needed at Moo 1, 2, 3, 4 and 5.

Approximately 500 rainwater storage tanks would be sufficient for all of the villages in the sub-district.

The quality of the water system at eth Tah Chat Chai Reservoir needs to be improved to ensure that the water is safe to use.

The SAO would like funds/assistance to help deepen reservoirs and to clear drainage channels.

**D-TRAC Water and Sanitation Checklist
SCHOOL**

Province: Phuket

Date: 14/06/2006

School Name: Ban Koh Wat Mai School

Location : Kanaen (Moo 2), Tep Kah Sat Dree sub-district, Thalang district

GPS: 47 P 0427850, UTM 0887971

Name and Title of Person Interviewed: Tawat Apinan, School Director

Phone: 04-064 3797 or 076-311 797

Other Contact Information:

Questions:

How many children attend the school? How many boys, girls, teachers?
What are their ages?

120 students (ages 4-12 years):
6 teachers

How did the tsunami affect the school? Were children's homes damaged or
parents' livelihoods affected? Explain.

Parent's livelihoods were destroyed or directly affected. Eg. Through the
destruction of hotels, vehicles, shops etc.

What is your source of water? Well, borehole, rainwater catchments, SAO
deliveries? Explain.

Water is currently delivered by the SAO via PVC pipes.

Due to a lack of water the SAO is currently digging a borehole within the
school grounds to provide water to the whole village. Once complete the
school can use the borehole water also.

Are there any broken water pumps, wells, pipes, etc, that are preventing you
from having a reliable source of water?

The school has four 4,000 liter concrete rainwater catchment tanks. All four
tanks are broken / leaking so the water is unusable.

The school has eight 1,000 liter concrete rainwater catchment tanks (two sets
of four tanks). The pipes connecting the tanks are broken so only one tank in

each set of four is usable. The tanks are in a poor condition with many cracks appearing in the concrete. The two functioning tanks hold insufficient water for the entire school.

The taps to the 1,000 liter tanks are broken so water has to be transported to the bathrooms by hose pipe.

There are some roof rainwater catchment pipes but these are rusty with many large holes and therefore not functional. These need to be replaced.

How do you get water in the dry season?

During the dry season the school receives water from the municipal supply.

Do you know how deep your well is?

What is the well's water table?

How much deeper do you have to dig to reach water?

How many toilets and sinks does the school currently have? What is the condition of the facilities?

There are 2 toilets for students behind the school, 1 for boys and 1 for girls. A sink with no taps is in a very bad condition and has no water supply.

There are a further 2 toilets for teachers. However, one of these is broken and out of use. The sink is in a good condition with a working tap (faucet) but there is no water supply connected.

There are three sinks at the front of the school. One of these has no basin and a broken tap (faucet). The other two sinks have leaky taps and a very low water pressure which makes them unusable.

Two of the toilets have broken doors.

The toilet floors are cracked.

There are two large sinks with space for 6-10 taps but none currently fitted. There is also no water supply to the sink.

Where are the toilets located? Sinks located?

The bathrooms are located behind the school alongside classrooms and the cafeteria.

Do the toilets, sinks, and pipes work? Anything broken or need replacing?

There are only two functioning taps for the entire school. The sinks in the bathrooms need to be repaired / replaced to improve sanitation.

The floors and doors of the toilets are damaged. Two of the toilet doors need to be replaced and the floors need to be repaired. One of the teacher toilets is completely out of use and needs to be replaced.

Ideally the school would like at least two more toilets.

What do you need to improve the school's water system? Ex. – pipelines, water tanks, wells, boreholes, etc?

The four 4,000 liter tanks need to be replaced to provide sufficient rainwater storage.

The taps of the 1,000 liter tanks need to be repaired to ensure running water is supplied to the bathrooms.

The school currently has some drain pipes to catch rainwater from the school roof but these are broken and need to be replaced. The addition of further drain pipes could ensure greater rainwater catchment and a larger water supply.

Are stormwater drains kept clear?

Yes

Do buildings, paths or roads experience flooding?

No

Is drainage water polluting existing surface/groundwater or causing erosion?

The school has cement drainage so there are no problems.

Where does wastewater go and is it treated in any way?

Wastewater runs away from the school via cement drainage pipes and joins the village drainage system.

Where does solid waste go? How is it managed?

Solid waste is stored in a cement septic tank underneath the bathroom. This is emptied when necessary.

Does the school have access to incinerators or does it have a garbage pickup?

The school has SAO refuse collection (which is taken to an incinerator).

The school also burns some refuse behind the school.

The school has sufficient garbage bins.

Does the school have a recycling program?

Yes. The school separates rubbish and sells this to recycling companies to make money.

Have any other organizations provided water and sanitation assistance for the school? Have they provided toilets, water tanks, sinks, a drainage system, etc? Has anything else been donated?

No

A P P E N D I X IV

Water and Sanitation Needs Assessment

DDPM

Introduction

The data and figures in this appendix have been translated from documents gathered in visits to provincial, district and sub-district offices, as well as villages. The original documents can be made available on request.

We have included our survey checklists as a matter of completeness and consistency. Empty fields in our checklists imply that the question has been answered by documents from a government office or village.

Damage and Effects from the Tsunami – Phuket

1. Deaths, Injuries and Missing People

Deaths, Injuries and Missing People	Number
Deaths	279 (Thais 163 Foreigners 111 Unidentified 5)
Injured	1,111 (Thais 591 Foreigners 520)
Missing	641 (Thais 256 Foreigners 385)

2. Damaged Area

Districts	Sub-districts	Villages
3	13	61

3. Habitation Damaged

Category	Number	Family
Affected people	18,376	4,600
Destroyed Houses	223	
Damaged Houses	1,120	

4. Damaged Property

Government Property	Religious Places
4 Schools	2 Temples
177 Government buildings	3 Mosques
	4 Muslim graveyards

5. Effects on the Economy

The economy in Thailand has been affected since the tsunami, especially in tourism and related business including fisheries, animal farms and agriculture.

5.1 Tourism and Related business

The National Economic & Social Development Board estimates that the most affected business is tourism, with hotels and related business such as restaurants, souvenir shops etc affected. There was a loss of around 30,000 million baht of business funding because tourists cancelled trips to Thailand.

The Tourism Authority of Thailand estimated the long term damage to the tourism industry could be the loss of 5 million tourists and business with a value of around 43,000 million baht.

5.2 Insurance against Loss and Life insurance

The Department of Insurance estimates, with insurance companies, that the cost of compensation will be around 3,000 million baht for death and the injured, and around 7,000 million baht for damage to property.

5.3 Properties and Careers

Losses	Damages (Baht)
Agriculture Areas	300,000
Animal Farms	303,650
Fisheries	344,911,169
Businesses	810,849,195

6. Natural Resources and Effects on the Environment

Soil resources

A total area of 22 rai has been affected covering the agricultural areas in Village number 2 and 3 in Chalong Sub-district Muang Phuket District, Village Number 3 in Saku Sub-district and Village Number 4 in Mai Kao Sub-district Thalang District.

Ground water resources

The shallow water-wells are contaminated by salt water and need to be repaired.

Coastal and Marine resource

1. Damage to mangrove forest in Mu Dong Canel Muang Phuket District covering 10 rai.
2. Sea grass areas sustained little damage.
3. 10-50% of the coral reef damaged south of Patong Bay.
4. Beach forest is dried out.
5. Waste water system at Patong and Gahlon are blocked and damaged by sand.

7. Social Effects

A total of 169 children lost parents in the tsunami

Children	Number
Children whose fathers died	76
Children whose mothers died	77
Children whose parents died	5

*Some orphans who lived with benefactors such as grandparents who died in the tsunami

Urgent Assistance

1. **Phuket Province.** Assisted Thais and foreign tourists. The Royal Thai Air Force and other airlines assisted 5,000 people in 4 days.
2. **Government and 6 Private Hospitals.** Assisted an estimated 1500 patients in first 3 days with a response from Thai government.
3. **Health Center.** Establishment of an aftercare center for those affected by the tsunami, work on environmental sanitation coordinated with other organizations and NGOs, who also gave support with medical assistance and essential doctors equipment.
4. **Government and Private Institute.** Donated much needed items to those affected such as transportation, foods etc,

Funding from the Government, Private and Local Administration

1. Transferring funding from the government to emergency assistance of tsunami affected people followed the rules of the 2003 Ministry of Finance.
2. The total budget spent by the Royal Thai Government for the support of people affected by the tsunami, was 91,145,000 baht.
3. The total amount for the restoration of ministries, bureaus, departments, state enterprises in area was 1,003,653,663.30 baht.
4. The total budget from the administration of sub-districts was 41,448,438.66 baht.
5. The total amount from private donors, domestic and international foundations was 260,873,454.77 baht.

Total amount from government, local administration and private donors was 1,467,758,018.23 baht.

Financial Assistance for Business

1. Bank of Thailand has provisionally approved a low interest loan of about 28,721.75 million baht for the Commercial Banks but this is being reviewed on a case by case basis.
2. The Office of Small and Medium Enterprises Promotion (SMEs) gave assistance by joining with 11 businesses resulting in the total of 192 million baht.

Tsunami Protection and Evacuation

1. Warning System Tower

This was done in order to create confidence and trust for people and tourists in the tsunami risk areas. Phuket was already setting up an Early Warning System by planning 18 Warning System Towers around the province. This system will receive the earthquake information and evaluates if there is the possibility of a tsunami. There will be an announcement warning from the National Warning System Center in Nonthaburi province for the government to warn people and tourists to move to a safe area.

There are 12 existing observation towers funded by the Phuket Administration Office and Bangkok Phuket Hospital. They have now hired private companies to set up life guards and 21 more observation towers in further at risk areas. They are also setting up a permanent center to provide emergency relief and first aid equipment.

2. Warning and Evacuation Signs

Phuket will be setting up around 734 warning signs and evacuation route signs from the risk area. This is an ongoing project.

3. Evacuation plan for those living in risk areas

Phuket had an evacuation drill at Patong Beach, Kathu District on April 29th, 2005 and there was a real evacuation on July 24, 2005 because of an earthquake in the sea of 7.3 Richter. The National Disaster Warning Center issued a request for people in risk areas to evacuate. This was the second warning in a year. It was a fast evacuation and the government decided to have two tsunami evacuation drills per year.

There were evacuation drills for 6 provinces at the same time on December 6, 2005 - in Phuket, they were in Patong beach, Kathu District and Bangtao beach – Laepang , Thalang District

List of Coordinators in Water and Sanitation Project

Province	First name – Last name			Position	Mobile phone	Office #	Fax #	Remark
Phuket	Miss	Maneerat	Aswarangkul	President of Provincial Red Cross.	09 699 0022, 05 892 6796			
	Mrs.	Suparat	Eegwanit	Treasurer of Provincial Red Cross.	01 719 2523	076-211 766	076-211 766	
	Mr.	Rapeepat	Na Nakon	Secretary of Provincial Red Cross				
	Mrs.	Praphaphan	Eungtrakul	Committee of Provincial Red Cross.	09 474 5137			
	Mrs.	Lianbe	Saelim	Committee of Provincial Red Cross.	06 953 9399			
	Miss	Aimaon	Iewsagul	Staff of Provincial Red Cross.	09 652 3442			
	Mr.	Utid	Tongprasan	Staff of Provincial Red Cross.	01 079 9215			
	Mr.	Nattawatt	Buaphut	Civil Engineer 4 of Public Works Department Officer of Provincial.				
	Mrs.	Sukon	Maneequan	Public Relations of Provincial Office of Education.	09 927 4075			
	Mr.	Annop	Hiran	School Head of Hong Yok School.	076 206 572			
	Mrs.	Somsri	Supason	Provincial Office of Education.	phuketarea@obec.go.th	076-213 628		
	Mrs.	Sawang	Parnmon	Red Cross Club		076-216 139		
	Mrs.	Piroh	Sutthakon	Provincial Fisheries Office.		076-212 460	076-210 618	
	Mr.	Omnuey	Chaibandit	Provincial Fisheries Office.	01 787 7138			
	Mr.	Sombud	Phuwachiranon	Department of Marines and Resources.	07 639 1128			
	Mr.	Wira	Unaok	Occupational Development Center.	06 685 5170			

NGO SURVEY
& SUPPLEMENTS
Water and Sanitation Needs Assessment

Introduction

The data and figures in this section have been translated from documents gathered in visits to provincial, district and sub-district offices, as well as villages. The original documents can be made available on request.

We have included our survey checklists as a matter of completeness and consistency. Empty fields in our checklists imply that the question has been answered by documents from a government office or village.

Contact Information

The following information is for contacts without survey reports

ADRA (Adventist Development and Relief Agency)

Location: Khuraburi & Bangkok

Contact: Todd Bruce, Project Director

Telephone: 076-491 967

Childline Thailand

Location: Phuket & Bangkok

Contact: Pai Panyawut

Telephone: 076-376 149

Department of Disaster Prevention and Mitigation (DDPM),

Location: Phuket

Contact: Khun Chapcharwan Manponsri, Director

Phone: 01-396 6290

Ministry for Environment and Natural Resources (MENR),

Location: Bangkok

Contact: Khun Somsak Isarankura, Senior Policy and Planning Analyst

Mobile: 06-167 7692

Office: 09-969 7027

Email: somsak@dgr.go.th

Poseidon CruisAIDers

Location: Phuket

Contact: Klaus Orlik

Telephone: 076-289 401

Rotary Club Patong Beach

Location: Phuket

Contact: Larry Amsden

Telephone: 01-487 4812

**D-TRAC Water and Sanitation Checklist
NGO / AID ORGANIZATION**

Province: Phuket

Date: 14/6/06

Location: Ban Laem Tukkae, Moo 4, Rat Tah, Muang

Name of Organization: Habitat for Humanity

Name and Title of Person Interviewed: Chalong Rat, Staff

Phone: 01 568 6783

Email: i_chairat@yahoo.com

Questions:

Where are you operating in the tsunami-affected areas?

Two sites in Phuket Province:

- Ban Tah Chat Chai, Moo 5, Mai Khao, Thalang
- Ban Laem Tukkae, Moo 4, Rat Tah, Muang

Are you involved in water and sanitation projects in the tsunami-affected areas?

Yes	No
X	

If Yes, what water and sanitation projects are you currently working on?

Ban Laem Tukkae (this is where we conducted interview):

- Constructing 36 houses with bathrooms
- Bathrooms are inside house and Habitat is installing the entire septic tank system

What projects have you already completed?

Construction of housing in Ban Laem Tookay is not yet completed. They are currently building houses at a rate of 12 per month and will finish the three-month project in August, 2006.

Do you know of any other current and past water and sanitation projects in the tsunami-affected districts?

Yes, see below.

Can you provide names, projects, and locations?

World Vision donated water tanks for each house in Ban Laem Tukkae.		
ADRA repaired 100 houses just after the tsunami in Ban Laem Tukkae.		
Do you work with government offices or partner organizations?	Yes	No
		X
If Yes, which ones?		
Our contact said that Habitat in Phuket is only working with other NGOs. In Ban Tah Chat Chai, they have private donors for each house.		
Do you see a need for additional water and sanitation assistance in the area?	Yes	No
	X	
If so, where?		
At present, villagers in Ban Laem Tukkae only have communal toilet areas, in which each family has their own toilet (door kept locked so only the family can use).		
There are three bathroom locations in the village.		
First site visited by D-TRAC Team:		
<ul style="list-style-type: none"> ○ 36 toilets; 1 bathroom for each family ○ Septic tanks are full to capacity so toilets are no longer used at this time 		
Second location visited:		
<ul style="list-style-type: none"> ○ 10 toilets; 1 bathroom for each family ○ Some bathrooms have doors and toilets that are in disrepair 		
Third location:		
<ul style="list-style-type: none"> ○ 16 outhouses over a canal leading out to the ocean; 1 outhouse per family ○ These outhouses are quite far for the villagers to walk to from their homes. When a family (parent and children) goes to use the facilities together, we were told that the parent uses the outhouse while the children sometimes go to the toilet on the ground near the outhouse. 		
Are there specific problems in villages, schools, preschools, health offices, etc, such as standing water and drainage issues, flooding, erosion, pollution of surface water, and water shortages?		

Chalong Rat from Habitat mentioned two schools in the area but wasn't sure if there are wat/san issues at these locations:

- **Ban Tah Lua Mai School** – kindergarten; 3 teachers
- **Koh Silay School** – primary school / preschool, ages 3 – 15 years old; has funding from government and currently building new school

Notes / Observations

Chalong told us that water is a non-issue in Ban Laem Tukkae; water is free from the government.

He recommended that we also visit Ban Tah Chat Chai; villagers there are still in need of wat/san assistance.

**D-TRAC Water and Sanitation Checklist
NGO / AID ORGANIZATION**

Province: Phuket

Date: 15/6/06

Location: 100/35 Vichit Songkram Rd., Moo 7, Kathu

Name of Organization: Asia Center Foundation

Name and Title of Person Interviewed: Chalalai "Tduk" Chanphuak,
Scholarship Coordinator

Phone: 03 107 2175

Email: tduk_9259394@yahoo.co.th, www.asiacenter.ac

Questions:

Where are you operating in the tsunami-affected areas?		
The Foundation works predominantly in Patong Municipality and is currently expanding to other areas throughout Phuket Province.		
Are you involved in water and sanitation projects in the tsunami-affected areas?	Yes	No
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If Yes, what water and sanitation projects are you currently working on?		
-		
What projects have you already completed?		
-		
Do you know of any other current and past water and sanitation projects in the tsunami-affected districts?		
No		
Can you provide names, projects, and locations?		
No		

Do you work with government offices or partner organizations?	Yes	No
	X	
If Yes, which ones?		
<p>ACF works with government schools to provide scholarships for students.</p> <p>Partner organizations include:</p> <ul style="list-style-type: none"> ○ Mission for Life ○ World Vision ○ Rotary Club ○ Sai Dek Caravan (Childline) ○ Schools in Thai Muang, Phang Nga ○ Phuket City Hall 		
Do you see a need for additional water and sanitation assistance in the area?	Yes	No
	X	
If so, where?		
<p>Ban Thung Thong School, Moo 7, Kathu:</p> <ul style="list-style-type: none"> ○ School has 6 toilets for all students (preschool through grade 6) ○ Needs 3-4 new toilets; cannot get the budget for these toilets approved by the government. 		
<p>Are there specific problems in villages, schools, preschools, health offices, etc, such as standing water and drainage issues, flooding, erosion, pollution of surface water, and water shortages?</p>		
-		

Notes / Observations

An Asia Center Foundation partner organization, Mission for Life, was present at our meeting. This Christian-based organization helps drug addicts, prostitutes, and vulnerable people who live in the Patong area to make better lives for themselves through rehabilitation and education.

This organization has built a 3-room Center two hours northeast of Bangkok in Patchong, Kurat Province. This place will serve as an educational center that will help recovered drug addicts and vulnerable people to learn life and vocational skills so they can incorporate themselves back into their communities and contribute something to society.

Mission for Life needs funding to provide the Center with:

- 2 bathrooms
- A well (10-20 meters deep) with pump and filtration system