Sustainable Tourism Management in Thailand: A Good Practices Guide for SMEs
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FOREWORD

It is easy to think of tourism as an inexhaustible goldmine—mountains and beaches will always be there for all to enjoy, hill tribal people will always adhere to their cultures and stay ‘innocent’. But like everything, the goldmine can deteriorate beyond cure if not properly managed. This could be prevented if the diggers, those who benefit from tourism be they the operators or travellers, know how to extract from and maintain the treasure itself at the same time.

This book is written with our faith that there are many good diggers. We believe that a great deal of tourism operators wish to play a part in conserving or restoring nature and culture that have long been the victim of careless tourism. However, information and inspiration is not always ready for them and the result is that energy and good intention just lie untapped. With such faith, we hope that this compact volume will fulfill its duty in giving operators practical information and advices, and usher Thai tourism towards natural and cultural sustainability.

The content of this book can be divided into two major categories: practical information and success stories. The former will give operators ideas of what they can reduce, alter or add to their operation for the betterment of nature and community. These ideas have been chosen because they are practicable for SME operators who comprise a large sector of Thai tourism and are the target audience of this book. The latter consists of impressive practices we have come across during a one-year field research for the sister publication *The Natural Guide to Thailand*. They are to illustrate that, with commitment and creativity, responsible and sustainable tourism management is possible. We also include sources for further information and contacts, wishing that positive collaborations among operators will ensue.

This book is the result of collaboration with and support from various parties. It is under the project “Meeting European standards for sustainable tourism management: capacity building of Thai enterprises and policy-makers, promotion of good practices in the Thai tourism sector”, implemented by the Environmental Research Institute, Chulalongkorn University and Bumi Kita Foundation, financially supported by the EU. We received valuable comments and constructive criticism from the participants of *Meeting EU Standards for Sustainable Tourism* workshop (2-4 May 2007, Bangkok), much of which we incorporated to enhance the content. Three more regional workshops will also be held throughout the country in September 2007 to disseminate awareness and ideas.

We sincerely hope that you will enjoy reading this book and find it useful. Please spread the ideas and enjoy witnessing the improvement!

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INTRODUCTION

The tourism paradox: Is tourism killing itself?

Since the 1970s, in many countries with low service costs and abundant sunshine, tourism development has been based on the three S's: “sea, sand and sun”. This is also known as mass tourism: large numbers of tourists coming to stay in cheap resorts located in coastal areas. In Thailand, this type of tourism has been developed in areas such as Pattaya, Phuket and along many of the pleasant beaches in southern Thailand.

Unfortunately, mass tourism provides little contribution to the local economy. It creates low-paid employment, and 80% of the profits are made outside the tourism area by foreign tour-operators, hotel owners and suppliers of imported goods for tourists. Moreover mass tourism, if not adequately controlled, destroys the environment. It can cause the depletion of water resources and the contamination of rivers and beaches. It can also lead to a rise in prices that put land and other resources out of reach for the local people. Mass tourism also encourages acculturation, social disruptions and, often, prostitution.

The environmental damage is quite visible in Thailand. High productions of waste with little collection systems, especially on the southern islands, have led to the creation of huge dumping sites in the middle of the forests. Plastic garbage covers the beautiful beaches where tourists enjoy bathing, and are affecting the coral reef and marine fauna (causing turtles to become endangered). Cultural damage is perceived in some hill-tribe villages in the northern mountains, where tour companies have turned these villagers into “zoo” characters.

In the long run, mass tourism can snowball into a vicious circle, destroying its very assets – a friendly culture, rich biodiversity, pristine beaches, beautiful landscape – that attracted visitors in the first place. There is also risk of lowering the quality of service, which will lead to the need of lowering prices to attract more tourists from less demanding segments of the market.

In 2005, the number of foreign tourists visiting Thailand totalled 13.4 millions (TAT), more than three times the number of visitors in 1990. Thailand has great assets for tourism development: 103 National Parks (including 21 marine parks), 89 Wildlife Sanctuaries, 5 UNESCO World Heritage Sites and historical parks preserving Thailand’s artistic and cultural legacy, as well as highly diverse traditions.
From mass tourism to sustainable ecotourism

Fortunately, there is another path: the way towards “sustainable tourism” through “responsible travel”. This path recognizes that businesses and communities depending on tourism need to protect the resources upon which they rely, such as natural landscapes, prosperous and friendly local communities, and traditional cultures.

In the world market, there is a growing demand for this type of tourism, especially among educated, affluent travelers from North America, Europe and increasingly Asia. These consumers are more and more aware of social and environmental issues, wishing to contribute towards the conservation of culture and ecological assets when they travel. Tapping this market makes sense from a business perspective: it will help attract wealthy travelers, increase the quality of the local tourism while taking the path towards sustainable development.

Within the growing market for responsible travel, sustainable ecotourism is especially interesting for Thailand: this type of tourism relies specifically on the appreciation and respect of local nature and culture. Ecotourism is a growing economic sector that can contribute to rural development, increase the welfare of local communities and provide incentives for environmental conservation. With its exceptional wealth of natural sites and myriad of cultures, Thailand could become one of the world leaders in ecotourism. Yet Thai ecotourism development is still far from reaching its potential and lacks international recognition.

Helping Small and Medium Enterprises towards sustainable ecotourism

Ecotourism operators, or potential ecotourism operators, are mostly Small and Medium Scale Enterprises (SMEs) which can be run by private companies, individuals, community groups or non-profit organizations. Most of them, however, are not prepared enough, or less so than larger businesses, to answer the growing demand for well-managed, sustainable ecotourism products. Most often, these SMEs do not have sufficient access to resources and information. Hence, this handbook aims at providing practical guidelines to help SMEs in Thailand move towards sustainable ecotourism. It has been written specifically for small-scale businesses and community-based tourism.
In 2005-2006, the Bumi Kita Foundation, in cooperation with the Environmental Research Institute of Chulalongkorn University, conducted a research throughout Thailand in order to publish *The Natural Guide to Thailand*. *The Natural Guide to Thailand* is a sequel to *The Natural Guide to Bali*, published by Bumi Kita Foundation in 2004-2005, which is the first of a series of traveller’s guidebooks recommending tourism operators in accordance to the steps and efforts they make towards sustainable ecotourism.

When conducting research for *The Natural Guide to Thailand*, we learned a lot about the good practices that can be implemented by SMEs trying to move towards sustainable ecotourism. We describe them in this handbook, in the hope that they would inspire and testify that responsible tourism can be implemented, and is already implemented, by many small businesses and communities in Thailand.

These principles are based on the general framework of sustainable development, also known as “the triple bottom-line”: economic viability combined with environmental and social responsibility. For each principle, detailed criteria were further elaborated based on existing certification systems and international guidelines for sustainable tourism (for example the guidelines from the UNWTO, WWF, UNEP, Green Globe 21, IHEI, the European Eco-Labels for Tourism, and other national certification systems such as the ones used in leading ecotourism countries like Costa Rica and Australia). Then, we developed locally based indicators in consultation with national and international partners, community representatives and feedback from travelers. In this regard, we organized three preliminary workshops to gather experts from tourism, environmental and cultural sectors. These experts are from IUCN (The World Conservation Union), WWF, DASTA (Designated Areas for Sustainable Tourism Administration), Thailand Research Fund, Green Leaf Foundation, REST (Responsible and Ecological Social Tour Project), Sueb Nakasathien Foundation, TAT, TEATA (Thai Ecotourism and Adventure Travel Association), Ministry of Tourism and Sports, Ministry of Natural Resources and the Environment, Ministry of Culture, and several companies and non-profit organizations.

**THE PRINCIPLES OF THE NATURAL GUIDE**

The chapters in this handbook follow the eco-rating principles used in *The Natural Guide to Thailand*, which are: “traveler-friendly, nature-friendly, and community-friendly” (see appendix).

1st principle: “**Traveller-friendly**”; the hotel or activity provides an enjoyable experience for travelers who appreciate nature and local cultures.

2nd principle: “**Nature-friendly**”; the operation is designed and managed in a way that reduces negative environmental impact and enhances environmental conservation.

3rd principle: “**Community-friendly**”; the operation contributes to the welfare of local people and enhances the local culture.

For further information please visit [www.naturalguide.org](http://www.naturalguide.org)
What are the Benefits?
Tourism business managers are often afraid that becoming “environmentally-friendly” will result in higher costs and reduced margins. Surprisingly, there are many direct economic benefits associated with sound social and environmental management.

➤ Loyal customers and enhanced public image
Tourists are increasingly sensitive to environmental and social issues. By sharing and taking action in these directions, respect and loyalty will be gained from customers who will spread the word about this particular hotel or tourism business. It will also improve the image in the neighborhood and public at large. Subsequently, businesses will benefit from the recognition of these efforts.

➤ Efficient and dedicated staff
Ecotourism principles also cover provisions about the welfare of employees. If efforts are undertaken to improve the work conditions and benefits of employees, staff members will become interested in the success and sustainability of the business. This will increase motivation, loyalty and efficiency – all leading to reduced staff turnover.

➤ Good synergy with local communities
Sustainable tourism operators must make efforts to involve local communities in decision-making processes and make sure that they get a fair share of the tourism benefits in the form of contributions for local welfare and development, improved infrastructure, better employment and business opportunities. This will also limit the risks of conflicts with local villagers and ensure that the hotel or tourism business maintains a harmonious relationship as well as receives help and cooperation from the neighboring community when needed.

➤ Long-term business benefits
Cooperation with other businesses sharing similar concerns and good practices for increased ecological and social sustainability offers opportunities for exchanging views, experiences and developing common programs. In the end, such collaborations can contribute significantly to improving the local environment and social conditions upon which the business’s sustainability depends.

➤ New business opportunities
Worldwide, particularly in Europe, Australia and the United States, a growing number of tour operators are already promoting “sustainable tourism” businesses. In all their destinations, they are looking for partners corresponding to the criteria of sustainable or responsible tourism. By taking steps in this direction and showing commitment to continue, this new form of market can be attractive.
Traveller-friendly is a criteria based on the perception of the tourists. The target market here are “ecotourists”: travellers interested in the responsible discovery of nature and local cultures. Tourism operators offer a range of facilities and activities to ecotourists. However, many of them have forgotten that ecotourism projects are sustainable and provide income to the local communities only as long as tourists keep visiting – rendering it essential to meet the expectations of ecotourists through an “ecotraveller-friendly” operator.

Important criteria for ecotourists are:
1. Pristine and aesthetic environment
2. Safe, clean, and comfortable surroundings and facilities
3. Friendly and efficient staff
4. Discovery of local nature and culture.

T.1. Pristine and aesthetic
“Provide a peaceful experience in a pristine, undisturbed, aesthetic environment in either natural or traditional man-made landscape”.

T.1.1. Quality of regional surroundings (1-5 kms around the business)
Travellers appreciate being located near an area with natural (waterfall, beach, river, forest, etc) or cultural (temple, archeological site, community market, etc) sites, so long as the business does not harm the area and population in any way. In order for tourists to enjoy protected natural areas, set your business in a nearby village, without encroaching on the natural area itself. If you search for an area with an ongoing traditional way of life, make sure that your operation is welcome and not intrusive.

Pristine forever?
Beauty and authenticity are a must in an ecotourism location. Ecotourists are looking for pristine natural landscapes or traditional settings. They dream of places with astonishing fauna and flora, little infrastructure development, and… no other tourists! To satisfy this growing demand, tourism operators are tempted to invest and create more and more facilities and activities. If not well planned and managed, ecotourism development can lead to over-construction (often via the use of illegal contracts), disturbance of fauna and flora, long-term environmental degradation and social exploitation. In a few years, unsound development of ecotourism can turn a pristine landscape into a degraded mass tourism destination. Paradoxically, tourism can kill itself. This is why legislation and planning, partnered with cooperation between policy makers, tourism businesses and local communities, are essential to ensure that ecotourism is simultaneously responsible and sustainable.
T.1.2. Quality of the immediate surrounding (0-500 m around)
Choose a clean and safe environment for your business.
- Unpleasant sights (roads, huge buildings, landfills, etc) should be avoided or hidden by rows of trees, walls covered with creeping plants or fences made from natural materials.
- To avoid nuisance noises such as cars or busy factories, try to build your establishment as far from noise sources as possible or insulate it with a wall or dense vegetation.

T.1.3. Views: possibility to enjoy the surrounding environment from rooms and other facilities
When designing a facility, take advantage of scenic views available. The windows, terraces, restaurants and other facilities should overlook natural or traditional landscapes (rice fields, villages, mountains, forests, beaches, rivers, etc) with minimal obstruction and landscape alteration (i.e. trees should not be cut down).
- Terraces and balconies are always appreciated by guests, especially furnished with relaxing chairs or hammocks.
- Keep your establishment as clean and green as possible. Instead of letting space become a bare concrete ground, try converting it into a small garden. Flowerpots help in case of limited space.
- Don’t overbuild and construct too many accommodations with a small space. Windows in every room should overlook a scenery - not the wall of another bungalow.

Choosing the right place
Koh Tao is known as a bustling diver-manufacturing location but peace can be found on this busy island as well. **New Heaven Huts** is located in Sai Daeng Beach – a very secluded beach, cut off from the touristic Mae Had and Sai Ree beaches. While the resort is difficult to access and requires the use of a 4WD, the operator facilitates guest access by providing free boat pickup and drop-off twice daily. The best bungalows overlook two bays at the same time. The non-beachfront accommodations are surrounded by lush gardens, home to myriads of butterflies.
A Room with a view
When you are blessed with a wonderfully scenic location, you should make the most of it as Coco Cottage (Koh Ngai, Trang) and Mountain Resort (Koh Lipe, Satun), have done. The bungalows and the restaurant of Coco Cottage are designed and arranged in a way for most rooms to enjoy the splendid blue sea and the rows of coconut trees, outfitted with wooden terraces and big glass panes. There is a big verandah in the restaurant where guests overlook the sea. The huge, elevated wooden balcony of Mountain Resort is a trademark of the operator and its view is often displayed on the covers of travel magazines. Every dining table enjoys a view of the white sand dunes, the transparent blue sea and the mountains of Adang-Rawi archipelago.

T.2. Safe, clean and comfortable
“The venue and surroundings are kept clean and safe, the various facilities and services such as the pool, tours, food, etc., are of good quality and enjoyable”.

A safe, clean and pleasant environment is a key factor for guests when choosing places to stay. Most ecotourists are happy with simple facilities which maintain a “natural” and “authentic” atmosphere, that simultaneously contribute to lessening harmful ecological impact. Nevertheless, the price should be consistent with the offered level of comfort.

T.2.1. Quality of accommodation (rooms and bathrooms):
Make sure the rooms are clean, in decent condition and ready to receive guests. Based on feedback from customers, cleanliness and good maintenance are by far the most important criteria for international travellers. Paint peeling off the walls, torn mosquito screens and unpleasant smells generate bad impressions on travellers.

► For most ecotourists, comfort does not mean air-conditioned rooms. They are happy with natural ventilation as long as fans and mosquito nets are provided.
► Aerate the room before guests arrive, especially if the rooms have been unoccupied for a while, to remove stuffy, damp smells.
► Provide enough garbage bins in all units.
Safety measures for guests:
- Safety measures for emergency situations must be implemented. For example, fire exit signs and fire extinguishers should be provided, especially in wooden bungalows. The position of the extinguishers must be clearly indicated and staff must know how to use them.
- First aid kits must be readily available and regularly checked. Staff must be able to perform basic medical care.
- Always keep the telephone number of the nearest hospital or emergency facility handy and display it in a visible place.
- Before taking guests on outings, make sure they understand the safety procedures. Check if equipment is in good condition and offer insurance to guests who participate in hazardous outdoor activities.

T.2.2. Quality of food: variety, freshness, kitchen cleanliness, restaurant atmosphere
Meals and food are an important part of the travellers’ memories and highly influence their choices.
- To preserve freshness and aid the local economy, ingredients should be purchased from local producers and markets as often as possible.
- Guests appreciate the discovery of local specialties – highlight such dishes on the menu as “recommended dish” or “local specialties”.
- Guests find it interesting if there is some information about the food in the menu: how it is prepared, with which ingredients, if it is special to the region, etc.
- Translate the menu into English and, if possible, display pictures of the dishes.
- Vary the selection of food and include dishes for special requirements such as vegetarian food or food for children.
- Preference should be given to organic food (see Criteria N23 on organic food).
- If possible, provide choices of location of table. Outdoor tables in a pleasant garden are preferred by many guests over tables in an air conditioned room.

Things you can live without
Air conditioning (A/C) is not essential.
Two successful resorts, Art’s Riverview Lodge (Khao Sok, Surat Thani) and View Point Resort (Koh Tao, Surat Thani) refuse to equip their units with A/C and have made the best use of cool natural breeze by equipping the rooms with lots of windows and large doors. Fans and mosquito nets are available in every room. Khun Panthep, the owner of View Point admits that this is sometimes unappealing to guests who are used to A/C but quickly overcome after an explanation and first-hand experience of fresh sea breeze.
**T.2.3. Quality of other facilities: garden, swimming pool, beach, etc**

Facilities around your operation should be sufficiently taken care of. There is no need to trim or water your garden everyday. Especially in a dry area, it will increase the water consumption and produce a sense of artificiality. Keep the garden lush enough but not too untidy, for example, dead leaves should be swept and used to make compost.

- Keep the poolside area pleasant and safe (dry, paved with rough surface, competent staff should be on guard). Plant vegetation and provide umbrellas for shade. Pool should be cleaned according to specifications from the manufacturer. Alternative cleaning methods using fewer or no chlorine are highly appreciated by Western travellers, since it is more eco-friendly, does not smell nor irritate the skin.

- Keep the beach clean: encourage your staff to pick up garbage, and/or organize beach clean-up events, inviting guests and the local community to participate.

**T.2.4. Suitability for families with children**

Child-friendly services and facilities are important criteria for families when choosing a hotel or operation.

- Staff should be able and willing to take care of children while their parents take part in activities such as diving or rafting. If possible, offer baby cots and professional baby-sitting services (preferably with a babysitter who can speak basic English or another foreign language).

- Connecting rooms are appreciated.

- Ensure the safety of children by providing a separate swimming area with shallow water. Put barriers in front of steep areas to prevent them from falling, etc.

- Provide a clean and safe playground area with nature-based activities for children such as biking, kite-flying, bird-watching or cultural activities adapted to children (i.e. traditional art class). Offer a special menu for kids.

**Taking a first plunge**

Both Narima Diving and Scubafish (Koh Lanta, Krabi) offer dive training courses to kids. Children as young as 5 can get a glimpse of underwater fun by trying out the scuba gear and have a splash around on the surface of a pool. Eight year olds can begin to learn diving by taking part in the “Bubblemaker program”: an introductory course to SCUBA diving in a controlled environment (2 meters maximum depth). From 10 onwards, kids can participate in the Discover SCUBA program or even apply for the Junior Open Water Certification (12 meters maximum depth). These courses take 1 to 2 days and are closely supervised by a PADI instructor.
T.3. Friendly and efficient staff

“The staff and any other people encountered during the stay or tours are friendly. The needs of the traveller are handled quickly, effectively and professionally”.

T.3.1. Staff attitude: hospitality and friendliness

The most important thing appreciated by all travellers is friendliness. Even if the staff have difficulties understanding and meeting the demand of an international visitor, it will be accepted as long as they show a friendly, welcoming and helping attitude. This fits well with the Thai tradition of hospitality.

➡ Friendly and attentive: the staff should respect the guests’ tranquility and privacy by displaying discretion.
➡ Operators should provide channels for guests to express their feedback, (i.e. comment and suggestion boxes/form or guest books).

T.3.2. Range and efficiency of services for travellers

A wide range of services is highly appreciated by guests: information services (i.e. maps and details of nearby attractions), travel, transportation, internet, overseas calls, etc. The staff should be able and willing to give information about such services or be able to refer guests to someone who can help them.

➡ Some of the staff should be able to communicate in English or other foreign languages.
➡ The booking service is the first contact of the guest with your operation so ensure that you provide them with an efficient and friendly service. The operator should have a good command of English, a good phone connection and make sure lines are not busy all the time.
➡ Online booking is very convenient, especially for foreign guests. Make sure that you reply promptly to the booking (ideally not more than 48 hours after receiving the booking enquiry).

Make it easier for your guests

At Shanti Lodge (Phuket), handicapped guests are provided with facilities that make sure they will enjoy their stay as much as others. There is a room on the ground floor which is designed especially for the handicapped with a shower accessible by wheelchair. There is also a portable wooden ramp for wheelchairs at the restaurant area. But most impressive of all is perhaps the swimming pool with a slope which enables guests in wheelchairs to enter with little assistance from the staff. After a nice dip, the lodge also provides anti-rust spray for wheelchairs.

Scuba Cat Diving (Phuket) recruits 1 instructor who was trained by IHDA (International Handicapped Divers Association) specifically to teach or accompany disabled divers. The price is slightly more expensive than for regular divers: for 2 dives, a handicapped diver pays 3,900 B instead of 2,900 B. This is a rare option and is well appreciated by a number of guests who return every year.
T.3.3. Capacity to serve the needs of special guests (handicapped, senior, etc)
Senior and handicapped travellers are a growing population, especially among Western people. Ensure that your establishment provides facilities that are accessible for special guests. For example, provide rooms on the ground floor, ramps for wheelchairs, adapted restrooms, etc. Special guests appreciate the assistance of the staff if needed.

Facilities adapted to serve the needs of handicapped and senior travellers.

T.4. Discovery of local nature and culture
“Travellers are given opportunities to enjoy and discover local environment or culture”.

Tourists coming to Thailand expect to discover its natural and cultural diversity with the help of ecotourism operators. Creativity is required to design original tours or packages that fit the demands and do not damage or exploit people and environment.

There are three main ecotourism activities:
- Outdoor or sport activities (hiking, trekking, rafting, surfing, diving, etc.)
- Discovery of nature (flora, fauna, bird-watching, etc.)
- Discovery of local culture and interaction with local people (dance, music, cooking, agriculture etc.).
T.4.1. Information, interpretation and activities are offered to discover local nature
Operators should provide and facilitate activities that will introduce guests to nature. Activities that don’t produce noise and pollution are highly recommended: trekking, cycling, kayaking, snorkeling, rafting, etc.
- Guests appreciate the company of knowledgeable local guides/instructors.
- Information about local nature (i.e. fauna and flora guests can expect to see) should be provided and accessible for guests, in the form of posters, books, brochures or fish slates on diving boats.
- If specific equipment is needed, it should be available (i.e. binoculars for bird-watching).

Fern Resort (Mae Hong Son) has helped develop the nature trail in its neighboring Mae Surin National Park. The map of the trail, along with trekking advices and the resort’s philosophy and services, is distributed at the reception counter and in the rooms. The map of the trail is now also being printed by the National Park office.

Many dive shops on Koh Tao, especially in Chalok Baan Kao area, try to limit the number of divers to only 4 per group and sail out to dive sites earlier or later than most operators to avoid the crowd.

Traditional healing arts
Well-being activities (yoga, massage, tai-chi, etc) are increasingly appealing to Western travellers, especially when based on the local culture. In Thailand, guests are very much attracted by traditional Thai massage and Buddhist meditation.

Guests appreciate to learn more about local fauna and flora.

Information on local nature prepared by communities using reused wood.
T.4.2. Information, interpretation and activities are offered to discover local cultures

► Guests appreciate and expect to be provided with information and interpretation about traditions and cultural differences. There is a wide variety of activities that operators can relay on the assets surrounding their operation:
  - Guided treks to places with cultural significance such as archeological sites or temples;
  - Cultural shows based on local music, dance and theatre traditions;
  - Discovery of agricultural or craftsmanship skills such as rice farming, coffee growing and grinding, weaving, etc;
  - Cultural classes where guests can learn cooking, weaving, dancing, music or other arts;
  - Participation in the everyday life of a community, where guests can learn about local life (i.e. giving alms to monks, touring the morning market and tasting local breakfast).

► Guests appreciate the company of knowledgeable local guides. If they do not speak English, provide written translated information in the form of posters or leaflets (upon request).
► Avoid taking guests to overcrowded, mass tourism areas.
► Keep the number of guests per group low (i.e. no more than 6 trekkers when visiting remote villages).
Avoid visiting the same community too often to keep the community undisturbed and preserve their spontaneous attitudes towards travellers. Make sure the community welcomes the activity and shares the benefits generated by the tour.

Provide adequate training and enforce a code of conduct so that staff employed do not accept commissions from shops and restaurants. This implies that the staff must receive adequate wages.

Explain the pricing policy to customers: the services of a well-trained ecotourism guide, who does not take commissions from shops, are likely to be more expensive than the average guide’s fees. Guests need to understand this.

Being a good guest

**PDA Tour** (Chiang Rai) is acclaimed for being one of the most responsible operators providing trekking and sightseeing of hill tribe villages. That success is achieved through two main principles. On the villagers side, PDA does not take clients to over exploited Long Neck Karen villages and gives back to communities through donations or entrance fees. On the other side, they provide visitors with a thorough and useful pre-tour informational session. The third floor of the PDA building is converted into a compact Hilltribe Museum. Travellers who intend to visit the villages or anyone who is interested will be educated about traditions and beliefs, DO’s and DON’Ts (such as how to take a photograph of tribal people) and how to minimize the impact of their visits. As for guests who purchase PDA trekking tours, they will be given a 1.5 hour briefing, including a 20 minutes slide show about the culture of 6 major tribal groups and a 15 minutes video about tribal tourism. Such preparatory processes enable the guests to interact better with the villagers and render their visits more meaningful.
Eco-friendly action is the combined effort of all involved parties in reducing negative effects on an increasingly affected environment. The tourism industry is, in particular, responsible for a considerable amount of environmental damage to both maritime and terrestrial eco-systems. Non-renewable natural resources are being exhausted, scarce or permanently damaged due to over-exploitation.

Environmental management for small-scale tourism enterprises can be divided into four aspects:
1. Environmental planning: policy, management, landscape and building
2. Water and energy conservation, reduction of chemicals use
3. Solid waste and waste water treatment

N.1. Environmental planning: policy, management, landscape and building
“The operation has a policy to minimize environmental impact. The facilities and activities blend with the local environment and give the priority to local and renewable resources obtained in a sustainable manner.”

N.1.1. Environmental policy, design and management
The first step towards an environmental management policy is a clear commitment. The management should define an environmental policy and express it in a simple way, clearly stating its objectives and communicating these objectives to the staff and guests. Once the commitment towards sound environmental management is clear, it is necessary to find ways to implement the policy.
- Display your environmental objectives in an easy-to-understand way in the business lobby, on brochures, webpages or menus.
- Translate the policy into practical measures in order to attain the objectives. All parties should understand them, especially the staff who are the implementors.
- Consistently monitor the progress. For example, if one of the objectives is to reduce water consumption, record monthly consumption and compare it with set objectives.
- Encourage your affiliates, such as shops in your establishment or your suppliers, to follow the set environmental policy. Ask them to carry eco-friendly products and ban the products made from endangered species.

The “3R” saving principle: REDUCE, REUSE, RECYCLE.
This universal principle applies to energy, water, raw materials and hazardous chemicals. By changing our daily consumption behaviour, we save money and respect the environment. The order of these 3 steps is fundamental. It means that prior to recycling or reusing, one should try to reduce the use of these resources. For example, before thinking about recycling a plastic bottle, we should reduce our consumption of bottles. Less bottles purchased = more money saved. Less bottles to recycle = even more money and energy saved. Similarly, before we buy costly eco-friendly detergent, we should reduce our use of detergent by, for example, washing bed linen less often.
It is written everywhere:

Guests entering the lobby-cum-restaurant area of **Libong Nature Beach Resort** (Koh Libong, Trang), are surrounded by posters packed with texts and illustrations. They cover topics such as how to involve communities in environmental conservation, how to use local products in the resort, how to reuse water and manage leftover foods, what happens to plastic bottles after you throw them away, etc. These posters serve not only to inform guests and staff on how to be ecologically responsible, but also announce the resort’s policy and action plan.

Clearly written environmental policy enables your guests to understand certain practices and adds more to the image of your operation.

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**Stepping back from the water**

When planning a new construction:
- Be sure to keep at least 3 meters distance from the public water source with less than 10 meters width; stay at least 6 meters away from public water source with width more than 10 meters.
- For big water bodies such as lake or sea, the buildings have to keep at least 12 meter away from the water (measured when the tide is at its highest).
- Exempted constructions are, for example, bridge, sewage, parking space (boat and car), pier, dam, etc. Go to [http://www.freesplans.com/FP_law/law.asp](http://www.freesplans.com/FP_law/law.asp) for more legal advice on construction laws in a non-legal language. Information is in Thai.

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**N.1.2. Environmental impact of site development, visual impact and integration into landscape and traditional land use**

When planning landscape design and choosing building materials, great care should be taken to minimize environmental impact. Commitment of the management can be observed directly through the design of the building and its efforts to harmonize facilities and activities within the landscape.

- **The legal aspect is the first area to check.** Make sure the area where you plan settling respects the legislation. Check that you are not building on a National Park or otherwise protected area – unfortunately a common mistake. Keep a distance from bodies of water: you don’t have to build your accommodation right on the beach or jutting over the river bank to please your guests. It might damage the environment and consequently your business (see box “stepping back from the water” for settlement legislation).
- **Minimize the ratio of building area compared to the immediate surroundings and allow plenty of space for vegetation.**
- **Try to make buildings invisible from the outside, by taking the surrounding landscape into account.** Do not introduce obtrusive structures into the environment. For example, the building should be lower than the tree tops and should blend in with local architecture.
- **Try your best to avoid altering the existing landscape.** For example, avoid
cutting trees or displacing boulder rocks. Instead, integrate them as parts of the structures if possible.

- Maintain natural and local vegetation in the garden instead of exotic species.

A good design will also help reduce future energy consumption costs. Plan to adjust the different spaces in a way that will reduce the use of energy.
- When designing the building, study the sun and wind orientation throughout the day and year to define the future location of spaces (room, lobby, kitchen etc). Make the most of these locations by maximizing the use of daylight and natural ventilation in order to minimize energy use. For example, make use of natural ventilation and light to decrease the dependency on A/C and artificial lighting.
- Shade roofs, walls and windows from direct sun to reduce heat gain. The use of trees, verandahs and pergolas is attractive and provides shade as well as a covering roof with thatch.
- Double-leveled roofs help maximizing heat flow in the building.

Free A/C from mother nature
Half of the solar energy is used by trees to evaporate water. So planting trees not only provides shade but also cools down the air. Check the most frequent direction of the wind in your area. To create excellent natural ventilation, construct the building perpendicular to the direction of the wind.
Adjust the surroundings of the building to help minimize heat. For example, plant grass instead of concrete pathways. Having a body of water around also helps since evaporation will lessen the temperature.

Light-colored roofs are cooler than dark colored roofs.

Where light is needed, trim vegetation that blocks lighting from the sun, paint the verandahs with light colours to reflect more light, and insert small transparent sections into the roofing to allow natural lighting.

**To see and not be seen**

It is not very easy to find View Point Resort when you are looking shoreward from the sea, especially when your eyes have been hurt by brightly colored corrugated-sheet roofs that litter the coast. The roofs of the bungalows here look just like brownish treetops and the rest of the construction follows the same principle. The design strikes the balance between the use of concrete and wood. The rooms are screened from one another by a garden where you can find myriads of flowers and fruits.

**N.1.3. Building materials**

Many owners of tourism businesses consider natural building materials such as wood and coral to be “environmentally friendly”. However, this is not necessarily the case. For example, the use of wood as a construction material is considered “natural” but it can damage the environment if the timber comes from endangered forest species.
Generally speaking, to create a building that is environmentally friendly, one should:

» **Give priority to local construction materials:** Buying material from a local source makes it easier to control whether the source is sustainable or not and reduces energy consumption for transport. In northern Thailand, *Tong Tueng* (*Dipterocarpus tuberculatus* Roxb.) is easy to find and suitable to use as thatching material. Coconut wood and palm leaves are also signature materials in southern Thailand. This practice adds local flavor to the establishment, reduces costs and promotes the local economy.

» **Use recycled materials, or reused material**

Popular and easy-to-find sources for reused woods include torn down old wooden houses, railway sleepers, and driftwood especially available during the monsoon season.

» **The materials come from a renewable, sustainable source:** timber from certified plantations, ubiquitous species such as coconut timber and bamboo, fruit trees such as jackfruit, durian or mango trees, or local species commonly planted in your area.

» **Avoid using rare woods** (i.e. teakwood) and timber extracted from natural forests, which may be illegally logged or managed in an unsustainable way. Only buy these species if they come from an FSC (Forest Stewardship Council) certified source.
**Simplicity works best**
Simple local materials can produce wonderful effects if wisely used. Khun Song, the owner of **Coco Cottage** intended to use as much easy-to-find coconut wood as possible. His wish was wonderfully realized and resulted in a cluster of beautiful bungalows with thatched-roofs and walls lined with coconut trunks. Inside, made-to-order wooden furniture and woven bamboo leaves ceilings create a warm and natural feeling. Concrete and metal sheets are minimally used here which makes Coco Cottage perhaps the most beautiful accommodation on Koh Ngai.

All structures in **Art’s Riverview Lodge** are partly built either from local wood or reused wood from old houses that were found in the area. All of them are unpolished and the raw natural feeling matches nicely with the rather wild surroundings.

**N.2. Water, energy and chemicals**

**N.2.1. Steps taken to reduce water consumption and dependence from ground/ tap water**
Water is increasingly difficult to get during Thailand’s dry season, particularly on the islands. Every year, from February to April, tourists note that the water from their shower is brownish, salty and smelly. This is because the water in the ground water table is limited yet the number of tourism operators and customers keeps increasing. Therefore, water supplies are dwindling because of unlimited and unregulated exploitation by the tourism industry, and sometimes other industries. Local communities suffer from this situation. However, there are some easy and low-cost steps to take to reduce pressure on ground water, such as using rainwater.

Steps to reduce water consumption and related costs:
- Define a clear policy, explain it to the staff and display it to raise the guest’s concerns.
- Evaluate all data about water consumption, equipment, occupancy, etc. Audit your expenses per month (including electricity consumption for water pump).
- Conduct regular checks for any leakage and fix them immediately.
- Maintain water pipes and all water using devices to reduce leakages.
- Reuse water. For example, water from rinse cycle or from dishwashing can be used to water the garden. Pool water can be used for cleaning (provided that it is not too chlorinated).
- Use rainwater harvesting systems.

In dry areas or on islands, every drop of water is worth a lot. Use rain-harvesting systems to make the best use of the treasure from the skies.
IN THE GARDEN:
➤ Choose vegetation species that are well adapted to local conditions. If you are in a dry area, avoid species that need a lot of watering. Flowers that are suitable for Thai climate include frangipani, jasmine, white champaka, etc.
➤ Keep a lot of trees and shade in your garden. Avoid open grass areas which become easily dry. Sprinkle lawn surfaces with peat moss, wood chips, or hay to cover the ground and reduce evaporation.
➤ Reduce flow, time and frequency of garden watering.
➤ Water the garden during the cool hours of the day: early morning or evening.

ACCOMMODATION AND BATHROOM:
➤ Install low-flow devices on taps.
➤ Use toilets with a dual flush system. If you are using the regular ones, put water-filled bottles in cisterns to reduce flush volume.

Shower time for your flowers?
Keeping your garden healthy begins by setting proper watering times. Avoid watering the garden at noon because the heated water evaporates immediately. Besides, water drops can magnify strong sunlight and delicate leaves and flowers may be scorched. Proper timing of watering the gardens will reduce water usage and costs as well as benefit the overall conditions of your garden.

➤ Install urinals in men restrooms. This device uses less water than toilets.
➤ Put signs in the rooms reminding guests to use water sparingly and not leave taps open unless needed.

LAUNDRY:
➤ Do not change bed sheets and towels everyday unless required by guests. Put signs in rooms requesting that guests hang their towels if they don’t want them changed.
➤ Load the machine to its full capacity. A partially filled washing machine wastes energy and water.
➤ Cold-water washing is most energy efficient. Use low temperature water that cleans satisfactorily.
➤ Front-loading washing machines, compared to top-loading washing machines, use less water and detergent and are also gentler on clothes.
Living 4x4 drive
Entertaining your guests does not always have to come from speed, which demands extra usage of fuel and energy, and is often noisy. Try going slow. Oxcart riding in Pai is a proof that, with originality, you do not need a motor to keep your guests thrilled. Khun Charoen, the owner of 3 genuine solid teak carts and 6 oxen will take you through rice paddies, soy bean plantations, forests and streams via the hilly, and at times bumpy, untrodden paths in Pam Klang village. The destination is Pambok waterfall where guests will be served sticky rice and tea cooked with bamboo cylinders. This unique activity requires almost no gasoline, except when guests are picked up and dropped in the Pai city nearby.

Try to come up with activities that do not require motor and fuel. The outcomes can be both originality and thrill for your guests. Oxcart riding is an example.

KITCHEN:
- Use bowls/buckets for washing/cleaning. Do not leave the tap running.
- Scrap excess food off dishes rather than rinsing it off with water.
- In case you use a dishwashing machine, always load it to its full capacity.
- When organizing outdoor activities:
  - utensils (plates, cups, etc) for guests can be color-coded and assigned to specific persons for a day instead of being washed repeatedly.
  - dishes can be scraped clean and stored in sealed bags until the end of the day and washed all at once to save time and water.

N.2.2. Steps taken to reduce energy consumption and/or develop renewable energy
Thailand has to import most of its energy from electric plants built in neighbouring countries. As the country’s development quickens, the demand for electricity continually increases, bringing the country to be more and more dependent on foreign supply. The government has already started imposing measures to the public and private sectors towards the reduction of energy consumption at a national scale.

On many islands where there is no electricity, power is widely supplied by generators that are unattractive for tourists. These engines cause pollution and noise. Fuel is even more expensive since business owners have to pay for its transportation from the mainland. Hence, reducing energy consumption will reduce costs and increase satisfaction of ecotourists.

Steps to reduce energy consumption, related costs and pollution:
- Define a clear policy, explain it to the staff and display it to raise the guests’ concerns.
- Monitor the energy consumption of each unit (kitchen, rooms, vehicles, etc). Set targets to reduce the consumption of each unit. When consumption is reduced, give bonuses to staff in charge of the related unit.
- Ask your staff to switch off all unused lighting and electric devices.
- Put up signs to remind guests to turn off unused lights and appliances and use power sparingly. Encourage guests and staff to use stairs instead of elevators, citing exercise as a motivation.
If you want to offer warm showers to your guests, create your own home-made water heating system. This is very economical: install a metal drum, barrel or a set of pipes, paint it black and place it under the sun. You can add a pipe to let the water fall downwards from it and create a natural shower. Since washing laundry with hot water requires less detergent, you can use solar-heated water to wash laundry in a more economical and ecological way.

Install key-tag switches or central switches in all bedrooms. If it is too expensive, you can also put switches outside the bedrooms so that your staff can turn off A/Cs or lamps inside the rooms when the clients have gone out.

During low season, group guests together and shut off the unused areas.

Promote tourism activities that do not rely only on fuel-driven vehicles. Try the healthy, noiseless and adventurous activities such as trekking, cycling, kayaking, snorkeling, etc.

Use solar powered energy or other sources of renewable energy, such as windmills or biofuel.

When buying appliances (A/C, fridges, washing machines, etc) check their electricity consumption and buy the least consuming ones. They may be more expensive but will be cheaper in the long run.

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**Energy alchemy**

The easiest example of “bio” diesel is when you recycle used cooking oil and turn it into fuel for vehicle engines. For such a transformation you will need a made-to-order machine (which can cost from 10,000 B on, depending on capacity) and a few important ingredients – caustic soda (Sodium hydroxide) and methyl alcohol. This promising alternative energy is being perfected by many parties in Thailand.

**Chumphon Cabana Resort and Diving Center** have been successfully using biodiesel. Uncle Damrong, a resort staff, has constructed a machine that turns used cooking oil bought from villagers into diesel oil for resort cars and boats. The initial investment was a little over 10,000 B and is now helping the resort save as much per month. One liter of cooking oil gives almost the same amount of diesel and costs about 12-14 Baht to produce – worthwhile investment considering the current increase in oil prices. The rate of production is about 3,000 liters per month. Diesel vehicle engines do not need any special modification to use biodiesel (fuel filter might need to be changed after the first 500 km). A delightful bonus: after Cabana drivers were asked to try their hands on the production, they learnt to appreciate the fuel and tend to drive slowly in order to avoid waste.

The machine will be cost-effective if the diesel demands of your business is high enough. In case your business is too small, a good option is to partner with others to share the device.

If you wish to know more about the practical technique, Chumphon Cabana is happy to share. Contact info@cabana.co.th for more information. You can also ask about the “Sub-terra” water treatment system discussed in N32 box.
The largest free power plant

To keep the natural feel of Koh Chang, Nature View Bungalows (Koh Chang, Ranong) offers 5 bungalows that require no electricity at all. Candles and lamps lit by kerosene and reused cooking oil are provided along with natural ventilation. The only units that need electricity are the kitchen and lobby area, which are powered solely by the free-for-all energy sources – sun and wind. Khun Kornelis, the owner, decided to install solar panels and windmills instead of fuel-powered generators after 2 years without electricity, because of these advantages:

➤ The system is not complicated and installation is easy.
➤ The equipments do not need any special maintenance. For example, solar panels only need cleaning with water and soap once in a while and can last up to 10 years before glass replacement is required.
➤ The system does not cause air and noise pollutions as generators normally do. The atmosphere is thus more pleasant and appreciated by guests.
➤ There is no fuel consumption. The sources of energy are free.
➤ It is safer than generators as there is no risk of fire.

The initial investment can be quite high. “I paid about 150,000 B for the installation of both windmill and solar energy systems”, said Kornelis, “but after that there is virtually no additional expense. If you calculate the cost of oil used with the generator in 10 years – the lifespan of solar panels and batteries – it reaches the same amount, if not more. And we have not talked about the price of the generator itself and annual maintenance. In short, the systems are cost-efficient in the long run and there is this incalculable benefit – the clean and peaceful atmosphere that attracts guests.” For a small and simple system, it takes only up to 5 years to break even with the initial investment.

Cloudy or windless days may cause energy drops, but the resort never experienced severe shortages. When the battery bank, comprised of 7 batteries, is fully charged, the capacity is 1,100 AMP and can be used in various voltages (12, 120, and 240V) after passing through an inverter (See appendix for diagram of the system and contact of Siam Solar, the supplier). If powering the whole establishment with solar energy seems a giant leap for you, then begin with a small unit. Phu Chaisai Resort and Spa (Chiang Rai) started experimenting with solar energy 4 years ago by installing solar panels in their spa, one of the most energy-consuming units with frequent use of A/C and waterheaters. They invested about 70,000 B and the result is an electricity bill cut by 30% each month.
A dry story

Before starting Kao Mai Lanna Resort (Sanpatong, Chiang Mai), the family used to run tobacco curing business and the legacy from the previous trade is now impressively utilized. Tall, old brick tobacco curing barns were not torn down when the business stopped but were converted into a group of 2-story accommodations which are now lushly covered with creepers. Some of them were transformed into laundry drying units, making use of the traditional technique of de-moisturizing tobacco leaves by letting the heated air flow from the door through the slit on the roof. However, the height of the building posed some difficulty in hanging and retrieving the laundry, the resort decided to stop using this technique and looked for another method to save energy. The result is the new solar laundry drying hut, similar to a green house. Initially, the skeleton of the unit was built from bamboo poles and covered with transparent plastic sheets to fully receive sunray. The structure lasted only 2 years so the resort decided to build a more enduring one from cement and glass panes. The amount invested was less than 30,000 Baht but Khun Katthirat, the manager, said it saves a lot of money and energy since there is no need for special maintenance and electric drying machines. It takes only 2 hours for a king-sized bed sheet to dry if hung in the morning. The unit is also used to make dry banana chips.

Chalak No.5

When you choose an appliance, go for the one with “Number 5” label. The green-yellow sticker is a certificate issued by EGAT to appliances that meet the energy-efficiency standard. EGAT randomly checks if the products that have obtained the label still maintain their quality every year since the project’s launch in 1993. At the moment, there are 8 types of products that have passed the test: refrigerator, A/C, compact fluorescent light bulb, ballast, electric fan, rice cooker, lamp and… brown rice.

Regular vs. low-consumption bulb

Incandescent light bulbs turn only 10% of electric current into light while 90% is wasted in heat. CFL (Compact Fluorescent Lamp or low-consumption bulb) consumes 80% less energy than the regular bulb and lasts 8 times longer.
TIPS TO REDUCE CONSUMPTION OF LIGHT BULBS:
- Replace old fluorescent bulbs with low energy-consumption ones (See appendix for energy consumption rate for each type of light bulb).
- Switch fluorescent lights off when not in use. Even though switching fluorescent lights on and off more frequently slightly reduces their life span, it is cheaper and more eco-friendly.
- Make sure light bulbs are not covered with dirt which can reduce emission up to 50%.

TIPS TO REDUCE CONSUMPTION OF A/C:
- Where A/C is used, try to limit air leakage: do not leave the window or the door opened.
- Try to maintain the temperature at 25 degrees Celsius. Travellers do not need – and mostly do not like – colder temperature.
- When installing the A/C, try to place the coil unit and condensing unit as close as possible to reduce the distance and energy needed to transport the coolant chemicals.
- Do not place the condenser unit in direct sunlight.
- If more than one condenser are grouped together, make sure the hot air from one does not blow directly into the others.
- Do not obstruct hot air flow from the condenser.
- Clean A/C filter regularly or it will restrict airflow and reduce efficiency.
- Do not put any plants in a room with A/C because the humidity emitted from the plants will increase the workload of the machine.
- The type of A/C that has the highest EER (Energy Efficiency Ratio) is the cordless remote controlled with 12.24 BTU/hour/watt (compared to the wire-controlled type which has a EER of 11.46).

TIPS TO REDUCE CONSUMPTION OF REFRIGERATORS:
- Do not place refrigerators in direct sunlight.
- Make sure the doors are shut tightly and the seals are clean to reduce energy waste.
- Refrigerators in vacant rooms should be switched off.
- During low-season, store goods together to turn on less refrigerators.
- Soft-drink or non-perishable snacks do not need to be stored in refrigerators until a few hours before they are served. If kept in a cool place, they need less energy to be chilled.

TIPS FOR BOAT DRIVING:
- Don’t drive too fast since most boats consume dramatically more fuel at high speed.
- Make sure that engines and propellers are well maintained and that hulls are kept clean to minimize drag.
Don’t leave the engine on when the boat is not in use (this applies also to cars and vans).
Make sure the oil from your boat motor does not leak – it wastes energy and damages ecological system.

**N.2.3. Steps to reduce the use of harmful chemicals**
- Try to avoid using harmful chemicals as often as possible.
- Monitor the quantity of detergents used in the kitchen, laundry, toilet and floor cleaning. Try to reduce the doses and check that those in use do not harm the sewage treatment process.
- When purchasing paints, detergents, disinfectants or cleaning materials, choose the less toxic ones. Check available products from the Thailand Green Purchasing Network ([www.tei.or.th/thaigpn/productlist.htm](http://www.tei.or.th/thaigpn/productlist.htm)).
- Train staff to use cleaning materials cautiously (i.e. wearing gloves and mask, washing themselves thoroughly and changing clothes after).
- Store chemicals in a cool, dry place and label them clearly and properly.
- When organizing an outdoor activity, do not use detergent or soap if dishwashing wastewater will be discharged directly to the environment.
- Monitor the quantity of chlorine in swimming pools and use the least possible dosages or use alternative methods such as salt-chlorinator which uses salt to sanitize the swimming pool.
- Reduce the use of chemical pesticides (herbicides and insecticides).
- Schedule pest control work during times that affect the least people.
- Use eco-friendly alternative methods for pest control such as manual control or organic ones.
- Serve organic food and practice or support organic farming.

**Living in a poisoned world**
Without knowing it, our daily life is full of harmful chemicals. They are everywhere, in paints, detergents, washing powder, bleaching products, fuel, batteries, cosmetics, wood treatment products, insecticides, herbicides, plastic bottles and containers, chlorine, etc. Most of them are made of chemicals from petroleum that disturb the female and male hormonal system. These chemicals are not only harmful for fauna and flora, but are also toxic for our nervous system, can cause allergies, rashes, respiratory problems, decrease fertility and cause birth defects.

**Compost: Self-made natural fertilizer**
Compost is the result of aerobic decomposition of organic materials by bacteria and worms. This reaction happens naturally but building a composter allows the control of the conditions and the pace of decomposition. Materials that can be decomposed include fruit and vegetable trimmings, food leftovers, rice straws, leaves, paper and corrugated cardboard, crop residues, weeds, animal manures (choose herbivore animals, such as a cow) etc. Avoid wastes from meat, dairy products and eggs (they tend to attract unwanted vermin). By making compost, your business will produce up to 40% less garbage. After a few weeks you get a natural fertilizer that will improve the soil quality and biodiversity in your garden or fields. More information and composting techniques at [www.mju.ac.th/organic/index.html](http://www.mju.ac.th/organic/index.html)

**Negative effects of chlorine in water:**
- Causes skin dryness, itchiness to the eyes, nose, skin and scalp;
- Negative effects on vitamin B, C and E levels in the body system;
- Can induce lung, heart and kidney problems, difficult breathing, stroke and cancer.
The miracle water: E.M. juice
E.M. is an abbreviation from “Effective Micro-organism”. It refers to a group of useful micro-organisms, discovered in 1983 by Dr. Terou Higa, who later modified and applied them for agricultural and environmental usage. E.M. is commonly seen in the form of a brownish liquid. It is a living micro-organism so it cannot be used with chemicals or anti-biotics and cannot cause harm to living organisms.

E.M. is used extensively as an agent to catalyse decomposition in waste water treatments or in compost fermentations. It can be used as a deodorant in both household environments and farms and can be mixed with herbs such as neem or galanga to create organic pesticide. It is also known to help balance the pH number of the soil.

Chumphon Cabana Resort and Diving Center (Chumphon) has explored the potential of E.M. juice to its extreme so as to minimize chemicals use. They turned one of the small shelters on their property into an E.M. manufacturing unit. Rows of big blue plastic gallons contain the regenerating micro-organism which will later be used to fertilize plants, make compost, sanitize and deodorize the toilet and sewage systems, clean floors and windows, and help decompose the effluent in septic tanks.

For instructions of how to make and apply E.M. juice in Thai, check out this link: http://www.nfe.go.th/13/banprak/culture/cul02.html

Secret of the black box
Phu Chaisai Resort and Spa invented an ingenious and low-cost way to trap mosquitoes. Before guest arrives, staff will put a homemade ‘black box’ in a corner of the room. The device is made from a big tin snack container that can be found everywhere in Thailand. The inside of the container is covered with black or dark-colored cloths to attract mosquitoes. With the lid opened, the box is left in the room for a while. Mosquitoes are lured in by the dark-coloured cloth inside the box. Then the staff closes the lid to trap mosquitoes in and put the box out into the sun. The tin container will be so heated that the mosquitoes are naturally rid off.
**Man vs Mosquito**

There are many chemical-free ways to avoid donating your customers’ blood to mosquitoes. Some of the simplest ones are:

- Make sure there is no stagnant water in buckets, flower pot saucers, drains, etc.
- Keep mosquito-eating fish such as minnow or guppy in a fish bowl, pond or fountain.
- Provide your guests with organic mosquito repellent. The most popular and efficient ones are those with lemongrass extract.
- Install mosquito nets and mosquito screens in the rooms.
- Warn guests to avoid “mosquito hours” (in most places this starts from 6 to 8 pm) by staying indoors, wearing light-colored clothes (as dark colors attract mosquitoes) or using organic repellent lotion.
- Note that “mosquito rackets” – the battery-powered mosquito killer in the shape of a tennis racket – might be efficient but should be avoided since used batteries are a hazardous waste.

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**What is organic food?**

Organic food comes from organic farming: products grown without synthetic chemicals (chemical fertilizers, insecticides, pesticides, herbicides). Organic farming implies that natural methods are used to keep plants healthy, such as:

- Enriching the soil with organic fertilizer, that can be made of compost or animal dung with straw, etc;
- Maintaining a diversity of plants and flowers in the garden to protect them from pests attacks (i.e. some aromatic plants naturally repel insects);
- This diversity of plants attracts a high diversity of insects, birds and bats, which maintains a natural balance among population and limits the risks of proliferation of a specific insect that might destroy the crop.

As well as improving the soil quality and fertility, organic farming offers other advantages such as reducing costs and being very much appreciated by Western guests.

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Organic farming involves chemical-free practices of taking care of plants. Here a net is used to protect plants from insects and pests.
Tastier, healthier...and wealthier

“Chemicals are a major problem in Thaton. People overuse them for their land here” Withoon, the supervisor of the organic farm project of Maekok River Village Resort (Thaton, Chiang Mai) points out. In a 10-rai (16,000 square meters) plot of land behind the resort, guests will find organically grown corn, Chinese morning glory, coriander, tomato, mango, pomelo, banana and many more. These chemical-free products are consumed daily in the resort by guests and staff, and the occasional surplus is sent to the market – an extra income for the resort. Withoon estimates that this organic farm helps the resort save up to 20,000 B each month, and more importantly, saves guests and staff from harmful farming chemicals.

The vegetation needs the usual care but all is done in a chemical-free way. To prevent insect and pest, lemongrass, neem (see the box below) and galanga essence are used along with a huge protective net. Growing various plants in the same plot also reduces pests. Fertilizer is made solely out of organic matter: pig dung and vegetable leftover. The amount invested can be 14 times less than when you buy a bag of chemical fertilizer which will also damage the soil in the long run.

The resort intends to spread the knowledge as much as possible. Starting from its own personnel, Withoon was sent to Maejo University in Chiang Mai to study organic farming with all expenses covered. The resort also recruits an organic farming specialist from the university to be the consultant for the project. Villagers, especially the youth, also benefit from this. The resort has, since 2003 been organizing free training sessions 3 times a year for villagers to learn how to make compost and organic pesticide. The success is flowering albeit slowly since soil needs to be reconditioned and most families still mix homemade compost with chemical fertilizer. A year later, the resort started to pick 10 students from Baan Thaton school for this training program whose curriculum includes not only organic farming in theory and practice but also basic English and computer skills and lasts up to two years. The youth selected often come from poor families and sometimes are paid for their trainee work at the resort at a rate of 70 B per day. Some graduates decide to continue working at the resort, some apply the lessons to their own farms and some further their studies.

Another operator that systematically sustains itself with organic produce is Chumphon Cabana Resort and Diving Center. The organically fed chicken (at the moment there are more than 500 hens) produce enough eggs to serve guests and staff daily. Chicken food is homemade with natural ingredients including vegetable leftovers and ground seafood shells from the resort restaurant, and purchased from the local market, rice chaff and bran. The formula reflects the resort’s goal to make the establishment chemical-free, even to the smallest details such as the eggs they use in the kitchen. Also, chicken dung is not thrown away but is mixed with leaves, rice chaff and bran to make compost (used within the resort).

For practical information in Thai about organic farming (for example, the recipes for various kinds of compost and manure, how to recondition the soil, etc), visit Maejo University website http://www.mju.ac.th/organic/index.html
N.3. Waste minimization and disposal

N.3.1. Steps to reduce waste creation
Many people tend to think that proper waste management means sending waste away for recycling. However, recycling is costly and requires the transportation of waste over long distances—a hardly eco-friendly practice. It is always better to avoid creating unnecessary waste in the first place. Proper waste management can reduce the volume of waste and at the same time save the use of raw materials, energy, resources and money. Steps to reduce waste creation:

- Reduce the use of excessive plastic wrappings (and advise suppliers to change production processes):
  - Avoid plastic wrappings. For eco-travellers, traditional wrappings such as banana leaves add a pleasant natural feeling to a picnic.
  - Provide guests with “reusable” laundry or shopping bags made from cloth instead of plastic.
  - Use glass bottles instead of plastic bottles.

Neem (Azadirachta Indica), commonly known as Sa-dao in Thai, is well-known for its insecticide and medicinal properties. Azadirachtin, neem’s principal active compound, is mostly found in seeds. Neem-based products offer an alternative to protect plants as well as to avoid undesirable effects of chemical pesticides and fertilizers. Neem-based formulations act as insect repellent but do not usually kill insects directly. Azadirachtin affects the insect’s physiology by mimicking a natural hormone. It inhibits feeding, and disrupts the insect’s growth and reproduction. It has proven effective against a large number of insect species, including beetles, weevils, leaf hopper wasps, cockroaches, and even termites.

Thailand produces around 14 million tons of garbage per year, less than 70% of which is collected and managed.

“3R”: REDUCING waste creation is the first and most fundamental step to minimizing all costs and pollutions. Once waste is generated, REUSING it is a free and zero-energy consuming way to save money and energy. Finally RECYCLING is the third step to make use of waste.
- Don’t use disposable (single-use) plastic tableware. Select durable plastic packaging containers such as Tupperware.
- Use refillable containers for bathing soap and amenities (i.e. small clay jar) which will both help reduce waste and also add some aesthetic value.
- Refill guests’ water bottles from a water gallon or fountain filled with mineral water so they don’t have to buy new ones and create waste. If needed, charge a reasonable price for the refilling service, which should be cheaper than buying a new water bottle. Provide an explanation for guests that the water used for refilling is safe as it is also mineral water, and that this service reduces waste creation and saves the environment. Water bottles that are being reused and refilled should not be kept in the sun to prevent damaging the plastic.

➤ In the restaurant:
- Avoid using single-serving condiment packages (sugar, butter and jam, salt, pepper, etc) in restaurants or for outdoor activities. Use appropriately sized containers.
- Reduce the use of drinking straws. Provide them upon request and avoid dispensers.
- Avoid paper table mats. Use reusable ones.

➤ Food:
- Reduce food waste by preparing appropriate quantities of food.
- Fat-free and oil-free foods are healthier and reduce problematic waste.
- Remove oils and fats from tableware with absorbent towels before washing whenever dishwashing effluent is released to an untreated sewage system. Never pour food debris down the drains or toilets.

➤ For packed lunches during outdoor activities, give priority to reusable containers that can be brought back and washed instead of plastic or Styrofoam wrappings. This will also minimize the chance of littering the places visited.
Making the most out of Bamboo

A wisdom that Khun Pooh, the owner of **Pooh Eco-Trekking** (Chiang Mai), learnt from his hill-tribe friend is that bamboo is wonderfully useful. When taking his guests trekking, Pooh does not carry plastic plates and cups, but rather cuts 2 locally rife bamboo trees and uses them to make utensils. The bamboo trees cut can make containers to boil water and cook rice, cups, trough plates, spoons and spatulas for up to 6 guests (the maximum number of guests Pooh will take at one time). Pooh only chooses bamboo that is older than 2 years so the young trees will have a chance to grow. Besides this practical use, these utensils also make great souvenirs.

→ Reuse household materials (i.e. reuse old clothes and other garments as cleaning rags or reuse paper for draft documents or receipts). Plastic containers can be reused in numerous ways, for example, plastic beverage bottles can be used as lightweight.

→ Waste materials still have some value: food leftovers can be made into compost, plastic bottles, cardboard boxes, glass bottles and cans can be sold to collectors or directly to recycling factories. You might want to give the money earned from this to your staff as an incentive to take better care of these recyclable wastes.

→ The measures should be implemented among the staff as well. When they go shopping, ask them to bring shopping bags so they do not have to take plastic bags from sellers.

→ Buy things in bulk to avoid packaging waste: instead of five small plastic bottles of ketchup, buy the gallon-size bottle of ketchup.

How long does it take to disintegrate under the sea?

- Orange or banana peals: 2 years
- Cigarette butts: 5 years
- Fishing nets: 30-40 years
- Plastic bags: 20-1,000 years
- Batteries: 100 years
- Glass bottles: 1,000,000 years
- Plastic bottles: inestimable

(Source: Greenfins Foundation)

And on land?

- Paper: 2-5 months
- Orange peals: 6 months
- Coated paper cups: 5 years
- Cigarette butts: 12 years
- Leather shoes: 25-40 years
- Aluminum cans: 80-100 years
- Plastic bag: up to 450 years
- Styrofoam: forever

(Source: Pollution control department, Ministry of Natural Resources and Environment).
N.3.2. Steps to dispose of liquid waste in an eco-friendly way

- Segregate different streams of wastewater. For instance, wastewater from cleaning vegetables can be used for floor cleaning.
- Use grease filters on sinks and grease traps in the kitchen. They require periodical pumping.
- Never pour used cooking oil down the drains or toilet. It should be collected in proper containers and might be sold or used to make bio-diesel fuel (See N.2.3).

Sub-terra water treatment system

One of Chumphon Cabana Resort and Diving Center’s homegrown environmental management techniques is the on-site “sub-terra” water treatment system. Grey water from some units is collected in a well walled with cement cylinders. From there, grey water goes through the holed PVC pipes which are placed over grass-surfaced ground. The secret is the ingredients beneath the grass surface.

There are 3 layers underneath, consisting of 3 different materials. The uppermost layer is fine rock, 20 cm in depth. Below is a mixture of sand, ground coconut shells and the bark and root of Horsetail Tree (*Casuarina equisetifolia J.R. & G. Forst*) which can be found on the shore, at a ratio of 4:1:1. This layer is 1 meter thick. The deepest layer is medium-sized rock (no.2), 30 cm in depth. All these are walled with plastic sheets so the water does not seep uncontrolled. Holed PVC pipes are buried under these layers to gather the filtered water. Every 3 square meter of sub-terra system can handle up to 150 liters of grey water per day.

Treated water goes to another cement well ready for reuse. The B.O.D. (Biochemical Oxygen Demand – an indicator of water quality) of filtered water is 11 ppm (part per million) while the standard for wastewater is 20 ppm and for tap water is 6. The sub-terra treated water is suitable for farming activities within the resort.

For more information, contact Chumphon Cabana (see box N.2.2).
N.3.3. Steps to dispose of solid waste in an eco-friendly way

- Separate the garbage. For example, organic waste can be used to feed animals or make compost. Recyclable inorganic waste should be sent to recycling service.
- Garbage containers should have lids to prevent the content from spilling and from scavenging dogs.
- If your business is on an island with no proper waste management system, make sure you send it back to the mainland. Also ask local authority to set up a waste management system.

‘Waste’ opportunity
At Koh Tao Underwater World Festival 2007, Khun Kaen, the owner of New Heaven Resort and Restaurant (Koh Tao, Surat Thani) and an active environmentalist, has launched a project of hazardous waste collection. Dive shops in Koh Tao produce a considerable amount of hazardous waste, namely batteries, which were once gathered and dumped in the pit on the mountain top. Often when it rained, harmful elements in the batteries were washed down, causing skin problems to the people living at the foot of the hills. To put an end to this, the festival organizers collaborated with the Local Administrative Office to assemble hazardous waste collecting/separating squads comprised mostly of children. Dive shops cooperate by putting such waste in assigned spots to be shipped to the mainland.
N.4. Participation in environmental education and conservation

N.4.1. Awareness raising, training and participation of employees in environmental management

It is important that employees understand why certain environmental measures are implemented so they will practice them with understanding. Then it can become a habit that they will pass on to others such as family members. Repeat the explanation to reinforce the agenda at meetings and gatherings. Since employees usually come from local communities, combine these programs with environmental education for local people, especially the more receptive, younger generation.

- Explain to the staff that environmental policies will bring new customers since the surroundings will be cleaner and more pleasant. As an incentive, give bonus or recognition to staff who implement the best environmental practices.
- Set up a bulletin board in the staff common room and post interesting, updated environmental news and articles.
- Work with local NGOs and volunteers to develop environmental education for employees.

N.4.2. Awareness raising, information and participation of guests in environmental conservation

Informing and educating guests about environmental policies and providing them with guidelines and tips are also important. However, be careful that all statements made about eco-friendly practices are actually implemented to maintain the image of your business. Providing guests with tips will ensure that they cooperate with environmental management.

- Put up signs asking guests to use water and electricity sparingly, e.g. to switch off electrical devices when leaving a room.

The future is looking bright in Surat Thani

Khun Somchai Sinma of Sinmana Oyster Farm and and khun Phanu Chamnanmuang of Nai Bang Mae Nam Roi Sai Community share the same vision: the future of our earth lies in the hands of our youth. Both engage children from local schools in projects to replant the damaged mangrove forests and the trees which are homes to fireflies (a tourist destination for the Mae Nam Roi Sai cruise tour). They also organize garbage pickup squads to clean the shores and river banks, which sometimes bring negative reaction from people who fail to understand – or simply feel guilty about their inactivity. A couple of years ago, Phanu succeeded in putting a river cleanup event on televised news, ‘a small slap in the face’ for those responsible. Soon after, the river was better taken care of and Khun Phanu now regularly gives lectures about environmental conservation at schools and universities. Khun Somchai actively supports the environmental club at Khao Phra Nim School near his farm. There, he also trains kids to become ‘nature interpreters’ and hires them as guides and sometimes even chefs.
Encourage them not to change towels and bed sheets everyday. You might want to include a succinct explanation on how careless use of resources affects the environment.

Ask guests to report leakages in water devices such as toilet, water basin, tap, etc.

Notify and encourage guests to participate when there are environmental activities, for example, reef checks, beach and coral cleanups, donations to environmental programs, etc.

Play + Learn = Plearn

Chumphon Cabana Resort and Diving Center devotes a 24,000 square meter area behind the accommodation to create ‘Plearn Garden’, a place where guests and communities can play/learn about sustainable farming technique. There are toy bamboo mills demonstrating how to increase the amount of oxygen in water, traditional rice mills, plots of various plants such as vetiver grass and water hyacinth with signs identifying names and their uses, etc. Guides are available upon guests’ requests.

Save the coral

Coral reefs house millions of organisms; they function as wave breakers and prevent erosion. Widespread intensive fishing and pollution have resulted in major damage to coral reefs all over Thailand. More importantly, with the development of the tourism industry, large quantities of corals have been damaged. In turn, coral reefs degradation leads to a serious drop in the number of inhabiting species.

Tourism can harm corals in many ways:
- Waste discarded in the ocean harm the ocean life. This is why proper solid and liquid waste management is important.
- A common source of damage is when live corals or shells are being collected as building materials, decoration or jewelry. Tourists should be informed that they should not buy any items made from marine animals.

Diving is another potential source of harm for the corals. Divers need to learn to appreciate the underwater life while preserving it. The Padi Aware program educates divers on steps to be taken to dive in an eco-friendly way. Join in the program and use the materials to educate your guests! www.projectaware.org.

Eat only with your eye

The magnificent Erawan Waterfall (Kanchanaburi) boasts 7 levels of beauty and the officers at the Erawan National Park intend to keep them so. From the third level on, no food is allowed – visitors can only take water with them. A checkpoint is set up at the second level where visitors who wish to continue must register their water bottles or glasses and pay 10 B for the deposit of each container. Number will be written on each bottle and when visitors return with the container, they can redeem their 10 B. Signs are shown in many languages to make sure all visitors understand the regulation. This practice was invented 5 years ago to control the amount of garbage and lessen the workload of officers.
N.4.3. Contribution and participation in environmental programs with local communities, business groups or environmental organizations

As they start to realise that natural resources are major assets in tourism (coral reefs, marine species, birds, butterflies and other wild animals), several tourism businesses in Thailand start contributing to environmental conservation programs. They collaborate among themselves, encourage other businesses and community members to participate, make efforts to involve guests in their programs. These efforts require continuous support and incentive from the government, guests and other businesses, as well as the involvement of local communities.

- Search for reliable local organizations that work on environmental issues in your area. Create or stay enlisted in a network of organizations (local, national or international) who share similar goals. Persuade other operators to do so to expand the collaboration (see appendices section for contact details of best practices operators in Thailand).
- Participate in conservation or awareness raising activities. There are many things you can offer: financial sponsorship, your expertise, your establishment as a venue for an event, food and accommodation for volunteers, etc.
- Provide channels for guests to support good organizations, by setting up a donation box or notifying guests about volunteering programs.

An exemplary community

KTDOK (Koh Tao Dive Operators Club, founded 2003) is a coalition of dive operators who originally gathered monthly to join forces to tackle environmental and social issues affecting Koh Tao. Today, the coalition is not as formal but the outcome of the cooperation is still quite impressive.

Koh Tao Underwater World Festival is an annual festivity taking place in February. The 2007 event was the fourth time. Fun is an important goal but equally important are the awareness-raising activities participated and sponsored by almost every dive center on the island. They sent their dive masters and rendered the equipment to tie 40 new buoys around the island and clean up the coral reef. Sea turtles were released and trees were planted.

Khun Kaen of New Heaven Dive Shop pointed out that even if organizations like KTDOK ceased to exist, dive shops on Koh Tao are still committed to their conservation aim. “They might not be extremely active but when we come up with projects and ask for their help, they never let us down”.

Besides working with national organizations, New Heaven Dive Shop also works with CPAD Foundation (Coastal Preservation and Development) on many environmental projects such as experimentation with bio-diesel or educating youth on the island about marine ecology (see box in section N.2.2.). “We didn’t really sponsor them with money or free accommodation because these young Thai marine students raise funds by themselves for research and activities. But we let them use our diving equipments and boats for free, sometimes with coffee and sandwiches from our coffee shop”, said Khun Kaen.

Knitting a green net

“We want to create a network, so communities will feel that they are not working alone”, said Warison Rakphan, the owner of Chumphon Cabana Resort and Diving Center. His business partner is located in Phato, lush forestry and water-source area in the south of Chumphon which is known as one of the best sites for white water rafting. Most communities in Phato area are located in the boundary of a declared preserved area. The resort hence figured that it was important for communities to learn how to exist with the forest. So they acted as a consultant and brought about knowledge of organic farming, how to optimize their resources and home-stay tourism management to increase the income of the community without damaging the environment. The resort also organizes a rafting trip in the area in collaboration with local operators.
This criteria focuses on the communities living in the area surrounding a tourism operation or business. Involving them in the design and implementation of the tourism operation is a way of contributing to their welfare and to the enhancement of local culture. Moreover, developing mutually satisfactory relationship with the local communities creates a better atmosphere in the tourism operation itself and contributes to a more pleasant experience for customers.

To what extent can local communities be involved in tourism businesses? How to create products that can help promoting local culture?

Community-friendly commitment focuses on:
1. Relationships with employees
2. Relationships with communities
3. Participation and economic opportunities for communities
4. Support of local culture

C.1. Relationships with a employees
“The management maintains good relationship with employees and treats them according to or above local standard”

C.1.1. All employees receive fair compensation and benefits for their work
Staff motivation is a key to success for any tourism business, especially since the staff are the first ones to interact with clients. Employees who receive a fair treatment and compensation will feel appreciated, recognised and motivated; therefore motivated to be friendly with clients and provide the best possible services. This means that employees should receive a fair salary and above minimum wages (see appendix 7). This is also a key element in keeping the best employees and reducing turnover rate.

- Besides their salaries, employees should receive additional benefits such as meals, accommodation or transportation allowances in case the operation is far from their home.
- The tourism operation should cover the medical expenses of the staff and their school-aged children, or, even better, provide them with a medical insurance to cover these costs.
- Insurance should be provided for staff working in dangerous outdoor activities.
To distribute tip among staff who do not have direct contact with guests, set up a central tip box where it can be easily spot such as the reception table.

Professional development support

Sukorn Beach Bungalow (Koh Sukorn, Trang) has a program to send two staff to English classes, organized by the Non-Formal Education Centre of Trang, on the mainland for 2 months during the low season every year. The staff qualified to take part in this program are those working in direct contact with guests such as receptionists or waiters. The tuition fee is covered but the staff have to find their own accommodation while in town. There is no obligation – staff do not have to ensure that they will continue working with the resort but most of them do. The trained staff note that the course has increased their efficiency and helped them in their career.

- If needed, the operator should help sponsor the tuition fee of the staff’s children.
- Employees should receive a bonus based on the profit of the operation.
- Tips should be fairly shared among the staff. In many cases, only a few employees, who are in direct contact with guests, receive tips. To avoid this discrepancy, put a collective tip box at the reception or cashier so that staff who are not in direct contact with guests receive some tips as well.

C.1.2. Good relationship between management and employees

Communication between the management and staff should be easy. When employees have problems, they should be able to talk to the management immediately.

- Set up a complaint box for staff: they might feel uncomfortable talking directly to the management.
- Involve staff in the decision-making processes.
- Organize staff meetings regularly to share ideas, feelings and suggestions on how to improve the business.
- Organize regular events such as parties, picnics or yearly outings to promote the sense of belonging among staff.

C.1.3. Training programs for employees

Hands-on learning seems to be the most popular way of training staff. However, more systematic training will enhance the staff’s capacity and improve the service.

- Try to organize regular training sessions. For example, set up a class to teach staff basic English, especially during low season when the workload is lighter. You can use the guestbook comments to design the training according to improvements suggested by guests.
- Do not set the policy to hire only experienced workers. People who are willing to serve and learn are often more motivated.

Professional development support

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C.2. Relationships with local communities

C.2.1. Good cooperation with local communities, conflict prevention

Actively involving local communities in the design and management of the operation will increase the operation’s sustainability. It is important to respect the communities who have been living here before and to avoid harming them or creating conflicts. Their knowledge and cooperation is essential to your business. For example, if you organize a village visit for your guests, consult the villagers first to discuss how they want to participate. Plan the trip with them as they will probably have interesting suggestions for the tour program.
Organize meetings with representatives from local communities from time to time to evaluate your business’s impact on the communities. Exchange ideas and solutions with them. Before beginning a new project, i.e. a new construction, always consult community members to prevent conflict. If the community is unhappy with your operation, reconsider your plan and try to reach a compromise.

C.2.2. Cooperation with local communities in environmental management

Environmental conservation can be a totally new concept in many parts of the country. Levels of environmental awareness and the understanding of modern environmental issues can be extremely low among local communities. Most people find it normal to discard solid and liquid waste in rivers without realizing the consequences. Ensuring the participation of local people in environmental activities is very important for the sustainability of ecotourism. The operators can help raise the community’s awareness by engaging them in activities:

- Beach clean-up: operators may want to create incentives by occasionally distributing small gifts or snacks to participants.
- Waste collection in the community.
- For dive centers: organize and sponsor reef checks or protection.
- Collaborate with the community to educate youth about environmental issues. Operators can sponsor fieldtrips or let children observe how tourism activities work in the real environment.

Teaching them young

During the month of May, the transition between tourist and monsoon seasons, officers of Tarutao Marine National Park (Satun) organize a children environmental camp. This camp brings 100 children from schools on islands near the Park together for 5 days and shows them how to protect their home. Youth learn how deforestation can eventually lead to shortage of freshwater through models demonstrating how quickly water seeps through tree-less, sandy land. They also learn about marine ecological systems from photographs and videos and take action during beach cleaning activities. Youth are obviously thrilled and share their enthusiasm with parents: “They go home and tell their moms and dads to stop illegal fishing and cutting down trees”, said Nareudat, Head of Tarutao Marine National Park. He also added that the camp intends to introduce what children can gain with responsibility from the lucrative tourism industry.

The event was initiated by the Park and sponsored partially by the Department of National Parks after they heard about the camp. Donations also come from local organizations such as the Local Administrative Office. The fund allows all children to attend free of charge and even bring home souvenirs such as T-shirts.
Keeping their home clean

Every month, members of **Koh Yao Noi CBT** (Koh Yao Noi, Phang-Nga) join force in bettering their community’s environment by planting mangroves, collecting garbage in the village or on the beach that, unfortunately, accumulates quickly due to the water currents from both Phuket and Krabi. Sometimes hundreds of students from the village school are asked to cooperate, collecting the residual debris from the 2004 Tsunami, especially sharp rock that might harm travellers. These activities are funded by the Community Environmental Fund—raised by 100B-deduction from the money each guest pays for the homestay package.

Recess! Take off your fins...

**CPAD Foundation** ([www.cpadfoundation.org](http://www.cpadfoundation.org), see section N.4.3) is a group of motivated young Thai and international marine science students who aim to “identify sustainable development strategies for coastal communities.” One of the communities CPAD chose to work with is Koh Tao. A group of local dive operators - **Buddha View Dive Resort, New Heaven Dive Shop, Ban’s Diving Resort, Black Tip IDC, Big Bubble Dive Resort** - joined CPAD and set up an introductory SCUBA diving course for children of Ban Koh Tao Elementary School. First the children were taught how to swim in a pool and then they were taken to snorkel in the sea. Some continued on to learn how to scuba dive.

The course aims to raise children’s awareness of the marine environment as they proactively learn about the underwater world, what is threatening that world and what can be done to protect it. A bonus is that children share what they learn with their parents, urging them not to fish or eat endangered species. Instilled with such awareness, the children hope to bring about a better condition on the island, especially as they become decision-makers in the future.

Another aim, especially stemming from the collaboration between New Heaven Dive Shop and CPAD, is to train local children to become dive instructors. This program is intended to give local youth more career opportunities, aside from being boat drivers or resort staff and thus improve their living condition.

“They helped us, why shouldn’t we help them?”...

...said Khun Khomsak Eawlek, the owner of **Mountain Resort**, who has lived on Koh Lipe for 40 years and tries to engage locals into tourism business. Most of the staff come from Chao Lay village on the island. The resort also lends elder staff, who are also local fishermen, money to buy long-tail boats (cost up to 140,000 B) which can be used for fishing during off-season periods. The borrowers do not pay any interests and can pay back gradually without deadline. During the high-season, these boatmen place Mountain Resort as a top priority and serve the guests from the resort before others.
C.2.3. Contribution to local communities’ welfare
A growing number of tourism operators in Thailand have understood that by helping local communities, they are helping themselves as well. Many of them have initiated projects, activities or funding systems that improve the living conditions of the communities around them. However it is necessary to consult the communities before starting any project, to involve them in the initiative and make sure it is suitably adapted to their needs.

➤ There are many ways to contribute to the welfare of local communities, such as:
- enhancing access to water, electricity, transportation such as sponsoring road construction.
- contributing to education such as building schools, donating stationary, building libraries or giving scholarships.
- contributing to health programs
- donating for the community development or to NGOs that are locally active.

➤ Guests should be informed of these contributions and encouraged to participate.

➤ Donation boxes can be put in the reception or other easily accessible places.

C.3. Participation and promotion of economic opportunities

C.3.1. Employment of local community members
To boost local economy and welfare, the operator must give priority to locals, i.e. hire employees from the village or the neighbouring areas. They may need training to improve and adapt their skills to the service expectations, especially for managerial positions. This practice will be cheaper, easier, and more suitable for your staff than to hire someone from elsewhere, especially from Bangkok.

C.3.2. Use of local products, support to local product development and sales
When purchasing materials, food or other supplies, preference should be given to local products. This will support local economy, create good relations with the surrounding communities, reduce environmental damage due to transportation and enable guests to get fresher products with a nice “local” touch.

All the basic food products, as well as products such as decorative handi-

For better education
Khun Phaiboon, the owner of P Guesthouse (Sangkhlaburi, Kanchanaburi) let a group of volunteers build a school for 40 Karen and Mon children on his rubber plantation free of charge. He also built toilets and a football field for them, adding to the basic construction of a thatch-roofed classroom. Once in a while, the resort treats children lunch and snack (the school has then been moved due to difficulty for staff to travel across the river).

EthicTour (Bangkok) also has something for children, namely the poor students in the Isaan area. This is a one-week program where guests are taken, among many places, to needy schools that have been chosen by a local NGO “Helper Education Association”. Guests have a chance to interact and give away stationary to students. These gifts are provided and purchased by EthicTour, using the benefits from their business. Guests can also teach English to students and teachers, and sometimes when there are dentists or doctors among guests, they can arrange an extra day for students to have a health check-up.
Since the beginning, Fern Resort has had a clear policy to hire as many locals and engage them in responsible tourism as much as possible. This stance corresponded to the governmental policy to distribute income to rural areas and resulted in a form of joint venture between the resort and the government of PM Chuan Leakphai, who granted funds to entrepreneurs that aim to boost local economy. (You can read about this policy on the website http://www.fernresort.info/about.php)

Even though Fern Resort has recently bought all the stakes back from the government, the resort still strictly adheres to its initial intention. Ninety per cent of the staff are hill tribe people from Mae Hong Son, with only a few managerial staff from elsewhere. Khun Thawatchai, the owner, points out the benefit of hiring local staff: since it is their own ‘home’, they are more concerned about the area than those who do not actually live there and thus take better care of the place. Also, the turnover of the staff is low since there is no problem of commuting or migration. The only extra effort is that it takes some time to train them. “But we do not want to turn them all into the same, standardized hotel staff. We wish they would remain as they are but with with a service-mind”, said khun Thawatchai.

Crafts should be bought locally. To provide further support to local producers, you can also:

- Buy products at higher prices than local market prices;
- Provide producers with technical or financial support;
- Assist local producers to market their products to tourists or to outside markets.

C.3.3. Involvement of local people in tourism related activities/services

Apart from recruiting local staff and purchasing local products, regular cooperation with local communities in your activities is beneficial both for the communities and for your business itself. It is very important for local people to decide by themselves how to proceed with activities.

- Your business can involve locals, or work with locally-owned/managed services if there are some, for example, by:
  - Hiring local guides for tours, trekking, hiking, etc.
  - Using the services of local fishermen for boat tours
- Visiting local craftsmen with positive interactions (discussions, purchasing of products)
- Offering guests or your staff classes with local experts in traditional crafts, arts, etc
- Offering guests cultural shows performed by local dance/ music/ theatre groups.

C.4. Support local culture

C.4.1. Interaction between guests and communities
Guests appreciate receiving information about local culture and being given opportunities to interact with the local communities in a positive way.

⇒ Guests should be informed about proper ways to behave in traditional settings. It is even better if the information is available in several languages (See also PDA Tour, T.4.2.).

⇒ Provide your guests with activities organized by the communities themselves such as participation in rituals, in agricultural activities, meeting in small groups with villagers, etc.

⇒ Provide an English (or other languages)-speaking local facilitator to ease communication between guests and villagers.

Picking from your neighbor’s tree
Chumphon Cabana Resort and Diving Center does not only disseminate their knowledge on organic farming to communities, but also encourages them to put theory into practice by actually buying the products from farmers on the condition that the farming is done organically. The hotel, in collaboration with the Ministry of Agriculture, has been organizing organic farming and self-reliant economy trainings for farmers since 2005. The neighboring Thoong Hong community applied the techniques to their fruit orchards, growing mangosteen, durian, rambutan, etc, with remarkable results – the same amount of harvest and less money were invested since no farming chemicals needed to be purchased. The hotel also supports the community by buying their products at the price quoted by the farmers themselves.
Mountain Resort prefers to hire local Chao Lay as guides. They are trained by TAT (Tourism Authority of Thailand)’s officers and some of them can speak basic English.

The Thai House (Nonthaburi) arranges a cruise for guests to discover the life on the banks of Bangkok-Nonthaburi canal network. The boat driver is the neighbor of the resort, whose primary job is tending orchards. As he takes guests on the cruise, he will stop at the houses of people he knows or where there is special event such as temple fair or lychee harvest. Sometimes guests are invited to join the feast and get a taste of local Thai cuisine.

Close encounter with local culture

Pirom’s Tour of Surin is designed so that guests can get a first-hand experience of local culture. His tours combine visits to Khmer temple sites and also villages where visitors can see how handicrafts are produced with thorough explanations from Pirom. The fact that Pirom will not take more than 8 people at a time makes each guest gain more. Sample visit: in one of the remote weaving villages of Surin, Pirom can take visitors from house to house to see the different processes of silk production. One house fetches cocoons from branches, while another boils the cocoons to retrieve the silk thread. Visitors can observe closely, ask questions which Pirom will translate into local dialect or Khmer, and even taste the boiled silkworm! The guide and his guests are always welcome because Pirom brings small gifts and speaks their language. Packed lunches cooked by Pirom’s wife also gives guests’ an intimate experience with the local culture since it includes authentic local dishes and is often eaten while seated in the nearby rice paddies.

Koh Yao Noi CBT provides a chance for guests to experience the local life, not only by staying with local families, but also by going out into the rice paddy or at sea with them, depending on the time of your visit. If you go during the rainy season, you will get to help out with rice harvesting and chaffing. The rest of the year, you can become an amateur fisherman and go out at sea from early morning to afternoon with villagers. If you arrive when school children and CBT members are planting mangroves (see box C.2.2), you can partake in this activity as well.

Blending in

One of the objectives that REST (Responsible Ecological Social Tours project) aims at in helping the communities develop CBT (see following box) is to ensure that they can “maintain their cultures and ways of life and direct their own futures”. This does not mean fending off external influences altogether, but lessening the negative impacts tourism may have on their culture. This is possible if operators prepare guests with substantial information to increase their understanding of the culture they are about to experience. REST is a champion of this. Information ranging from general codes of conduct, basic phrases, Thai mentality (‘Jai Yen’, ‘Greng Jai’, etc) and taboos are imparted to guests as a preparation before trips through handouts, websites, and orientations by tour facilitators and local guides. This is to ensure that the local culture is understood and respected.

(For an example of a guideline for responsible travel, see appendix 8).
C.4.2. Promotion of local culture
With its rich cultures and traditions, Thailand attracts a strong inflow of "cultural tourism". Travellers come to Thailand not only for its beaches but also for its rich culture: diversity of ethnic groups, numerous temples and historical sites, colourful ceremonies, silk handicrafts etc. While this trend has encouraged the preservation of many attributes of Thai culture, it can also result in the "commercialization" and "sanitization" of culture. Cultural elements are turned into commodities, devoid of their authenticity and their original significance. Some hill tribe tours are treating local communities members as mere objects, with no respect for their culture and dignity. Such communities are exploited as "curiosities" and receive no benefits from these tours. Therefore, tourism operators need to ensure that the interaction between guests and local communities is mutually positive.

Your business can provide guests with opportunities to discover the local culture:

- Promote local culture through your brochures, websites, exhibitions, etc.
- Help promote the traditional skills and culture. Guests appreciate when local arts or crafts are used for decoration in your establishment.
- When there are cultural events such as traditional music or dance performances in your area, notify guests and help facilitate their attendance. The events don’t need to be held exclusively for tourists as those held for locals are even more interesting, but make sure your guests’ presence is not intrusive.

Getting your guests acquainted with local culture
Local everyday objects can be great gateways for guests to get a taste and learn about local culture. Sensi Paradise Resort (Koh Tao, Surat Thani) provides southern style sarongs for guests to use in the hotel area.

What is CBT?
This is the term that hopefully you will get to hear more often in the future. CBT (Community-Based Tourism) is, according to REST, “tourism that takes environmental, social and cultural sustainability into account. It is managed and owned by the community, for the community, with the purpose of enabling visitors to increase their awareness and learn about the community and its local ways of life.”
Community-Friendly

Keeping the roof above one’s head
Khun Art of Art’s Riverview Jungle Lodge found a unique tile for the roof of his resort. *Krabueng Roi-pii* (‘One hundred year tile’) is manufactured only in the *Tha nang hom* district of Songkhla province and is, sadly, a disappearing building material. The tile is made from clay, kneaded and pressed into the mold by foot and baked until the reddish color appears. As suggested by the name, the tile can last as long as a hundred year if nothing falls on it. Khun Art found that the natural earth color matches with his resort but the reason why he specifically chose it is that he wished to see the continuation of such local wisdom.

C.4.3. Contribution to local culture conservation and development
Not only promoting Thai culture, your business can also contribute and offer support to the activities of local artists and cultural groups, either by:
- Providing facilities or trainings (e.g. training in specific cultural skills to maintain traditions).
- Granting scholarships, financial support, sponsorships.
- Organizing cultural conservation/development activities.

Local artifact is always a good introduction to local culture. **100 Islands Resort** (Surat Thani) uses shadow puppets as decoration. These puppets are made by the family of Khun Suchart Subsin of Nakorn Sri Thammarat. They create them to pass on the tradition and knowledge to the next generations.
The Natural Guide Eco-rating Criteria

T. Traveller-friendly – The operation provides an enjoyable experience for the travellers who appreciate nature and local culture

T.1. Pristine and aesthetic surrounding
T.1.1. Quality of regional surrounding (1-5 kms around the business)
T.1.2. Quality of the immediate surrounding (0-500 m around)
T.1.3. Views, possibilities to enjoy the surrounding environment from rooms and other facilities.

T.2. Safety, cleanliness and comfort
T.2.1. Quality of accommodation (rooms and bathrooms)
T.2.2. Quality of food: variety, freshness, kitchen cleanliness, restaurant atmosphere
T.2.3. Quality of other facilities: garden, swimming pool, beach, etc
T.2.4. Suitability for families with children

T.3. Friendly and efficient staff
T.3.1. Staff attitude: hospitality and friendliness
T.3.2. Range and efficiency of services for travellers
T.3.3. Capacity to serve the needs of special guests (handicapped, senior, etc)

T.4. Discovery of local nature and culture
T.4.1. Information, interpretation and activities are offered to discover local nature
T.4.2. Information, interpretation and activities are offered to discover local culture

N. Nature-friendly – The operation is designed and managed in a way that reduces environmental impact and enhances nature conservation

N.1. Environmental planning: policy, management, landscape and building
N.1.1. Environmental policy, design and management
N.1.2. Environmental impact of site development, visual impact and integration into landscape and traditional land use
N.1.3. Building materials

N.2. Water, energy and chemicals
N.2.1. Steps taken to reduce water consumption and dependence from ground/ tap water
N.2.2. Steps taken to reduce energy consumption and/or develop renewable energy
N.2.3. Steps to reduce the use of harmful chemicals
N.3. Waste minimization and disposal
N.3.1. Steps to reduce waste creation
N.3.2. Steps to dispose of liquid waste in an eco-friendly way
N.3.3. Steps to dispose of solid waste in an eco-friendly way

N.4. Participation in environmental education and conservation
N.4.1. Awareness raising, training and participation of employees in environmental management
N.4.2. Awareness raising, information and participation of guests in environmental conservation
N.4.3. Contribution and participation in environmental programs with local communities, business groups or environmental organizations

C. Community-friendly – The operation contributes to the welfare of local people and the enhancement of the local culture

C.1. Relationships with employees
C.1.1. Fair compensation and benefits for all employees
C.1.2. Good relationship between management and employees
C.1.3. Training programs for employees

C.2. Relationships with local communities
C.2.1. Good cooperation with local communities, conflict prevention
C.2.2. Cooperation with local communities in environmental management
C.2.3. Contribution to local communities’ welfare

C.3. Participation and promotion of economic opportunities
C.3.1. Employment of local community members
C.3.2. Use of local products, support to local product development and sales
C.3.3. Involvement of local people in tourism related activities/services

C.4. Support to local culture
C.4.1. Interaction between guests and communities
C.4.2. Promotion of local culture
C.4.3. Contribution to local culture conservation and development
## APPENDICES

### Appendix 1:
Type of lamps available in the market

<table>
<thead>
<tr>
<th>Type of lamp</th>
<th>Picture</th>
<th>Efficacy(1) (lumen per watt)</th>
<th>Price</th>
<th>Lifespan (hour)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incandescent lamp</td>
<td></td>
<td>8-22</td>
<td>15-40 B</td>
<td>750</td>
<td>- Only 10 per cent of the energy it consumes is converted into light, the rest becomes heat. Can be used with dimmer switch.</td>
</tr>
<tr>
<td>Fluorescent lamp</td>
<td></td>
<td>30-83</td>
<td>40-80 B</td>
<td>20,000</td>
<td>- Various color tones to choose from. - Hardly affects the environment's temperature - Ballast and starter required. - Comparatively more difficult to install and to control the light's direction.</td>
</tr>
<tr>
<td>Compact Fluorescent Lamp (GFL)</td>
<td></td>
<td>30-83</td>
<td>100-200 B</td>
<td>12,000</td>
<td>- Similar qualities to fluorescent lamp but easier to install, for example, can replace incandescent bulb without any modification since they come with the same types of bulb cap and built-in ballast and starter. - Easier to control the light's direction.</td>
</tr>
<tr>
<td>High-pressure mercury vapor lamps</td>
<td></td>
<td>26-58</td>
<td>(2)</td>
<td>24,000</td>
<td>- The most popular type of High Intensity Discharge lamps (HID). - Only available in white tone. - Starting the lamp can take 3-7 minutes and 3-6 minutes to re-strike when the light is extinguished. - Long lifespan but the quality of light drops gradually.</td>
</tr>
<tr>
<td>Metal halide lamp</td>
<td></td>
<td>67-115</td>
<td>(2)</td>
<td>20,000</td>
<td>- Developed from high-pressure mercury vapor lamp with better light quality and more light tones to choose from. - Some models require 10-15 minutes to re-strike the lamp. - Most lamp require UV filter.</td>
</tr>
<tr>
<td>High-pressure sodium vapor lamp</td>
<td></td>
<td>74-132</td>
<td>(2)</td>
<td>24,000</td>
<td>- The best lumen maintenance of all HID sources. - Long lifespan; suitable for outdoor use or where it is not convenient to change bulbs. - Low color rendition.</td>
</tr>
<tr>
<td>Low-pressure sodium vapor lamp</td>
<td></td>
<td>100-180</td>
<td>(2)</td>
<td>18,000</td>
<td>- High efficacy but with poor color rendition - Gives only strong yellowish light. - Starting time is up to 13 minutes.</td>
</tr>
</tbody>
</table>

(1) Efficacy is the ratio of amount of light the lamp produces to the amount of energy it consumes (lumen per unit).

(2) Price list can be obtained from suppliers.
Appendix 2:
Maximum allowed concentration of liquid wastes
(Regulation issued by the Ministry of Natural Resources and Environment, December 2005)

<table>
<thead>
<tr>
<th>Index</th>
<th>Unit</th>
<th>Maximum amount allowed according to capacity of building</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Category A</td>
</tr>
<tr>
<td>1. pH</td>
<td>-</td>
<td>5-9</td>
</tr>
<tr>
<td>2. BOD (Biological Oxygen Demand)</td>
<td>mg/l</td>
<td>Not more than 20</td>
</tr>
<tr>
<td>3. Suspended solids</td>
<td>mg/l</td>
<td>Not more than 30</td>
</tr>
<tr>
<td>4. Settleable solids</td>
<td>mg/l</td>
<td>Not more than 0.5</td>
</tr>
<tr>
<td>5. Total dissolved solids</td>
<td>mg/l</td>
<td>Not more than 500</td>
</tr>
<tr>
<td>6. Sulfide</td>
<td>mg/l</td>
<td>Not more than 1.0</td>
</tr>
<tr>
<td>7. Nitrogen (in the form of TKN)</td>
<td>mg/l</td>
<td>Not more than 35</td>
</tr>
<tr>
<td>8. Fat, oil, and grease</td>
<td>mg/l</td>
<td>Not more than 20</td>
</tr>
</tbody>
</table>

Note:

<table>
<thead>
<tr>
<th>Type of building</th>
<th>Size and capacity</th>
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<tbody>
<tr>
<td></td>
<td>Category A</td>
</tr>
<tr>
<td>Hotel</td>
<td>Not less than 200 rooms</td>
</tr>
<tr>
<td>Restaurant</td>
<td>More than or equal to 2,500 m²</td>
</tr>
</tbody>
</table>

Appendix 3:
Small-to-medium waste water treatment systems

When selecting your water treatment system, you should consider:
- Property of the waste water you produce (e.g. chemical component, amount of solid particle, etc)
- The level of treatment you want
- Geography of the environment and the size of treatment site
- Construction and maintenance budget, etc

A. Onsite Treatment
This technique is the most popular and is often used to treat waste water from individual or small compound of buildings. Ready made equipment can also be purchased. The system works best in the environment in which the ground water table is not too near the surface to prevent seeping and contamination. The bottom of the equipment should be at least 0.6 meter higher from the water table and the tank should be at least 30 meters away from natural water bodies.
**Septic tank**
- It is an enclosed tank with no exposure to water or air (anaerobic condition).
- The product after treatment is gas, water and septage (about 1l/person/day). Generally the tank will need to be emptied once a year, and more frequent if the waste input includes material that is difficult to degrade (tissue paper, sanitary napkins, plastic, etc).
- Treated water still contains high level BOD so it cannot be disposed directly into the environment. Further treatment is required.
- No corrosive chemicals (i.e. concentrated detergent, chlorine, etc) should be disposed to the system since it will damage the equipment and affect decomposition.

**Anaerobic Filter**
- This system is more efficient than septic tank, with “media” section where stone or plastic straw/ball/grill is contained to increase space for microorganism. These organisms will help decompose organic substance and lessen BOD in treated water.
- Make sure that there is minimal suspension in the influent since it might clog the media and cause odour.
- Waste water from toilet should go through septic tank before coming into anaerobic filter.
- Initially sludge from septic tank can be added to anaerobic filter to help increase the amount of decomposing microorganism.

**B. Stabilization Pond**
This system utilizes nature to treat organic components in waste water. It consists of a series of at least 3 ponds, the last of which is ‘Maturation pond’. Budget and maintenance is low, but large space is required.
**Anaerobic Pond**
- This pond, the first of the series, will treat the influent with high level of organic component. The process does not require oxygen. Solid substance will settle at the bottom of the pond and will be decomposed anaerobically while the treated water will go to facultative pond for further treatment.
- The temperature of water should be kept at higher than 15 degrees Celsius with pH higher than 6 to maintain the balance of the Methane-generating bacteria and acid-generating one.

**Faculative Pond**
- This is the most commonly used pond. The top part of the pond is aerobic section, with oxygen from air and algae’s photosynthesis. The deeper part is in anaerobic condition.
- The process taking place in this pond is ‘Self-purification’. First, organic matter will be decomposed by aerobic bacteria and become food and energy of the microorganism and algae. Then anaerobic bacteria at the bottom will convert organic matter into gas as happens in anaerobic pond. The gas will float up and will be oxidized by oxygen in the top of the pond, causing the smell to vanish.
- If the amount of organic substance in the influent is too high, the level of oxygen will not be enough and the odour will be emitted.

**Aerobic Pond**
- The pond is not very deep so oxygen can pervade, causing the whole pond to be in aerobic condition. Photosynthesis from algae and aeration increase the level oxygen. Sunlight will also help disinfect the water.

**Maturation Pond**
- This pond is not deep and the sunlight can penetrate through to the bottom. Treated water from other ponds will end up here for disinfection before being released into the environment.

**C. Constructed Wetland**
This method relies on natural process and is used especially to improve the quality of already treated water (i.e. decrease the level of nitrogen and phosphorous) or as a secondary treatment system. Budget and maintenance required are low.

When waste water flows into the first part of constructed wetland, part of organic substance will settle at the bottom and be degraded by microorganism. The dissoluble organic matter will be decomposed by suspending microorganism. De-nitrification will also take place.
**Free Water Surface Wetland**
- The soil at the pond floor is pressed tightly and the pond is often built with three levels. The first level harbours water plants with tall stalls and long clutching roots such as sedge, vertiver, or narrow-leaved cattail to help filtering suspensions. The surface of the second part is filled with plants such as lotus, water-lettuce or water-fern which will help increase DO and instigate nitrification. The third part is similar to the first one and de-nitrification will take place here.

**Vegetated Submerged Bed System**
- The water plants used will increase the transportation of oxygen into water and ventilate the methane produced by anaerobic decomposition into the open air environment. Nitrogen and phosphorous from the influent is used up by the plants, which also filter suspensions.

Illustrations: courtesy of Pollution Control Department (Ministry of Natural Resources and Environment)
Appendix 4:  
Hazardous waste

Examples of household hazardous waste:

- Batteries (contains cadmium; harmful to bone structure)
- Car batteries (contains lead; damaging to red blood cell)
- Fluorescent lamps (contains mercury; harmful to nervous system)
- Paints (contains flammable and toxic substance)

Organizations where you can dispose hazardous waste or request information and advice:

- **Department of Industrial Works, Ministry of Industry**
  Rama 6 Road, Ratchathewi, Bangkok
  T: 02 202 4165, 02 202 4167

- **Waste and Hazardous Substance Management Bureau, Pollution Control Department, Ministry of Natural Resources and Environment**
  T: 02 298 2433

- **Sa-mae Dam Industrial Waste Disposal Service Centre**
  Soi Wat Sa-mae Dam, Bang Khunthien, Bangkok
  T: 02 651 8816-22
Appendix 5:
Example of simple solar energy system

Diagram is courtesy of Siam Solar and Electronic Co., Ltd.:
T: 02 526 0578, 02 965 0690
F: 02 526 0579, 02 526 0127
Appendix 6:
Save the corals: 10 things you can do

by Project Aware Foundation

1. Avoid purchasing souvenirs made from coral or any threatened or endangered marine species.
2. Support the establishment of coral reef protected areas and encourage better protection and management for those that already exist.
3. While travelling, choose resorts and tour operators that properly treat all sewage and wastewater.
4. While operating a boat, navigate carefully to avoid contact with coral reefs and other vulnerable ecosystems such as sea grass beds and maintain engine equipment to prevent oil and gas spills.
5. As a diver or snorkeller, choose tour operators that use mooring buoys or drift diving techniques whenever possible rather than anchors that can cause reef damage.
6. Make wise choices in selecting seafood by avoiding items that are caught or farmed using destructive or unsustainable practices including reef-killing poisons, explosives, and illegal equipment.
7. Avoid purchasing tropical wood furniture or products obtained from clear-cut tropical forests causing siltation damage to coral reefs.
8. As a diver, practice buoyancy control skills in a pool or sandy area before diving near a coral reef. Make sure your gauges and equipment are secured to avoid accidental contact with the reef, and never touch, stand on, or collect coral. Be an A.W.A.R.E. diver.
9. Report all damage of coral reefs to dive operators and scientific or conservation groups that monitor coral reef health.
10. Enroll in an AWARE-specialty course with a PADI professional to increase your knowledge about coral reefs and other aquatic environments.

More information: www.projectaware.org
Appendix 7:
Minimum wages (8 hours/day)
Issued by Ministry of Labour, October 2006

<table>
<thead>
<tr>
<th>Area</th>
<th>Minimum Wage</th>
</tr>
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<tbody>
<tr>
<td>Bangkok; Nakhon Prathom; Nonthaburi; Prathumthani; Samutprakan; Samutsakhon</td>
<td>191 B</td>
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<tr>
<td>Phuket</td>
<td>186 B</td>
</tr>
<tr>
<td>Chonburi</td>
<td>172 B</td>
</tr>
<tr>
<td>Saraburi</td>
<td>168 B</td>
</tr>
<tr>
<td>Nakhon Ratchasrima</td>
<td>162 B</td>
</tr>
<tr>
<td>Rayong</td>
<td>161 B</td>
</tr>
<tr>
<td>Chachoengsao; Ayutthaya; Ranong</td>
<td>160 B</td>
</tr>
<tr>
<td>Chiang Mai; Phang Nga</td>
<td>159 B</td>
</tr>
<tr>
<td>Krabi; Petchaburi</td>
<td>156 B</td>
</tr>
<tr>
<td>Kanchanaburi; Chanthaburi; Lopburi</td>
<td>155 B</td>
</tr>
<tr>
<td>Ratchaburi; Samutsongkhram; Sakaew</td>
<td>154 B</td>
</tr>
<tr>
<td>Trang; Prachuap Kirikhan; Pracheenburi; Songkhla; Singburi; Angthong</td>
<td>152 B</td>
</tr>
<tr>
<td>Loei; Udon Thani</td>
<td>150 B</td>
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<tr>
<td>Chumphon; Trad; Lamphang; Lamphoon; Sukhothai; Suphanburi</td>
<td>149 B</td>
</tr>
<tr>
<td>Kalasin; Khonkaen; Nakhon Phanom; Nakhon Srithammarat; Narathiwat; Buriram; Pattani; Yala; Satun; Nongkhai</td>
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<tr>
<td>Kamphaengpet; Tak; Nakhon Nayok; Nakon Sawan; Phatthalung; Phitsanulok; Petchaboon; Surat Thani; Uttaradit</td>
<td>147 B</td>
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<tr>
<td>Chainat; Chaiyaphoom; Chiang Rai; Mahasarakham; Mukdahan; Yasothon; Roi Et; Srisket; Sakonnakon; Nongbualumphoo; Uthai Thani</td>
<td>146 B</td>
</tr>
<tr>
<td>Phichit; Mae Hong Son; Surin; Ubon Ratchathani; Amnat Charoen</td>
<td>145 B</td>
</tr>
<tr>
<td>Phayao; Phrae</td>
<td>144 B</td>
</tr>
<tr>
<td>Nan</td>
<td>143 B</td>
</tr>
</tbody>
</table>

Appendix 8:
Sample of Responsible Travel Guidelines

- Thailand is an ancient country and there is a lot to learn here. Active interest will make your hosts feel respected and appreciated. Ask lots of questions and show enthusiasm to learn about local life.
- Please wear modest, polite clothing, especially in sacred sites or rural areas. Clothes covering the knees and shoulders are most appropriate. Thailand is a very diverse country, and you will see local people wearing a wide variety of clothes. However, if you ‘play safe’ you will earn respect from the vast majority of ordinary Thais.
- The King is revered in Thailand. It is extremely upsetting for Thais if visitors criticize the king or enter into ‘debates’ about his role.
- The Thai way of resolving conflict is to stay calm, so please don’t loose your temper. You’ll go a long way in Thailand with patience.
- Lovers – Please be aware that kissing in public is culturally inappropriate, and makes local people feel very uncomfortable.
- Please try to communicate with people before taking photographs. Monks, farmers, children, etc are not exotic, photogenic ‘images’ to be ‘snapped’, but real people. Please remember that what seems strange or exotic to visitors is just daily life for the locals.
- Please try not to disturb animal and plant life. Animals and plants could be rare, fragile, sacred, or even harmful to your health.
- Thais believe that the feet are the ‘lowest’ part of the body and the head is sacred. Please don’t rest your feet in high places, or move objects with your feet and NEVER point your feet at monks or Buddha images. Please take off your shoes before entering local houses. Please don’t touch anyone on the head.
- Ladies - please don’t sit next to or hand anything directly to Buddhist monks – they are also forbidden to meet one-on-one.
- Please don’t give gifts, money or sweets directly to small children – this encourages begging and ‘idolizing’ tourists. It’s much better to play with the kids and make a contribution towards a local project.

Courtesy of REST (Responsible Ecological Social Tours project)
For more information, consult these websites.
(Information available only in Thai)

- Green purchasing and list of certified environmental friendly products
  http://www.tei.or.th/thaigpn/productlist.htm

- Practical energy saving tips in very accessible presentation
  http://www.thaienergynews.com/m0300.asp
  http://www.thaienergynews.com/m0900_00.asp
  http://www.egat.co.th/labelNo5/default.htm
  http://activity.sanook.com/egat/tips.php
  http://www.energy.go.th/th/download.asp

- Information on organic farming
  http://www.mju.ac.th/organic/

- General information and advice on waste management
  http://www.pcd.go.th/info_serv/water_wt.html#s4
  http://www.pcd.go.th/info_serv/waste_garbage.html#s4
  http://www.pcd.go.th/info_serv/waste_rubbish.htm
## INDEX OF BEST PRACTICES BUSINESSES

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Contact</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Islands Resort</td>
<td>19/6 Moo 3, By pass Road, Makhantia Muang, Suratthani 84000, Thailand</td>
<td>T: +66 77 201 150-8 F: +66 77 201 159 <a href="mailto:tippanya@hotmail.com">tippanya@hotmail.com</a> <a href="http://www.roikoh.com/">http://www.roikoh.com/</a></td>
<td>48</td>
</tr>
<tr>
<td>Ban's Diving Resort</td>
<td>Koh Tao, Suratthani84280, Thailand</td>
<td>T: +66 77 456 061 / +66 77 456 466 M: +66 81 979 8025 <a href="mailto:bans@amazingkohtao.com">bans@amazingkohtao.com</a> <a href="http://www.amazingkohtao.com">http://www.amazingkohtao.com</a></td>
<td>42</td>
</tr>
<tr>
<td>Big Bubble Dive Resort</td>
<td>P.O. Box 21, Chalok Ban Kao, Koh Tao 84280, Thailand</td>
<td>T: +66 77 456 669 <a href="mailto:diving@bigbubble.info">diving@bigbubble.info</a> <a href="http://www.bigbubble.info/">http://www.bigbubble.info/</a></td>
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<td>Black Tip IDC</td>
<td>P.O. Box 8, Koh Tao, Surat Thani 84280, Thailand</td>
<td>T: +66 77 456 488 F: +66 77 456 489 <a href="mailto:info@blacktipdiving.com">info@blacktipdiving.com</a> <a href="http://www.blacktipdiving.com">http://www.blacktipdiving.com</a></td>
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<tr>
<td>Buddha View Dive Resort</td>
<td>45/1 Moo 3, Koh Tao, Suratthani 84280, Thailand</td>
<td>T: +66 77 456 074 F: +66 77 456 210 <a href="mailto:info@buddhaview-diving.com">info@buddhaview-diving.com</a> <a href="http://www.buddhaview-diving.com">http://www.buddhaview-diving.com</a></td>
<td>42</td>
</tr>
<tr>
<td>Chumphon Cabana Resort</td>
<td>Chumphon Office &amp; Resort: 69 Moo 8, Thung Wua Laen Beach, Pathiu, Chumphon 86230, Thailand</td>
<td>Chumphon T: +66 77 560 245-7 F: +66 77 560 247 Bangkok T: +66 231 6859 F: +66 231 6860 <a href="mailto:info@cabana.co.th">info@cabana.co.th</a> <a href="mailto:info@chumphoncabana.com">info@chumphoncabana.com</a> <a href="http://www.cabana.co.th">www.cabana.co.th</a> <a href="http://www.chumphoncabana.com">www.chumphoncabana.com</a></td>
<td>23, 28, 30, 37, 38, 45</td>
</tr>
<tr>
<td>Coastal Preservation and Development CPAD Foundation)</td>
<td>87 Wireless Road, All Seasons Place, 23rd Floor, M Thai Tower, Lumpini, Pathumwan, Bangkok 10330, Thailand</td>
<td>T: +66 627 9383 F: +66 627 9001 <a href="mailto:info@cpadfoundation.org">info@cpadfoundation.org</a> <a href="http://www.cpadfoundation.org">www.cpadfoundation.org</a></td>
<td>42</td>
</tr>
<tr>
<td>Erawan National Park</td>
<td>Moo 4, Tha Kradan, Si Sawat Kanchanaburi 71250, Thailand</td>
<td>T: +66 34 574 222/ +66 34 574 234/ +662 196 2055 Ext. 100,101,104,105 F: +66 34 574 288/ +66 34 574 234 <a href="mailto:erawan_np@hotmail.com">erawan_np@hotmail.com</a> <a href="http://www.thaiforestbooking.com">http://www.thaiforestbooking.com</a></td>
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<td>Name</td>
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<tr>
<td>Fern Resort</td>
<td>64 Moo 10, Ban Hua Nam Mae Sakut, Pha Bong,</td>
<td>T: +66 53 686 110 / +66 53 686 111 F: +66 53 686 111 <a href="mailto:info@fernresort.info">info@fernresort.info</a></td>
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<tr>
<td></td>
<td>Muang, Mae Hong Son 58000, Thailand</td>
<td><a href="http://www.fernresort.info">http://www.fernresort.info</a></td>
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<td></td>
<td>Pa Tong, Chiang Mai 50120, Thailand</td>
<td><a href="http://www.koamailanna.com">http://www.koamailanna.com</a></td>
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<td><a href="http://libongnature.trangsea.com">http://libongnature.trangsea.com</a></td>
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<td><a href="http://www.maekok-river-village-resort.com">http://www.maekok-river-village-resort.com</a></td>
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<td>Mountain Resort</td>
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<td>Thailand</td>
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<tr>
<td>Klong Roi Sai Tourism</td>
<td>49 Moo 5, Tambon Bangchana, Muang, Suratthani</td>
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<td>Nature View Bungalows</td>
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<td>P Guesthouse</td>
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<td>Pai Oxcart Riding</td>
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