Phuket Sustainability Indicator Report
SEEKing a Sustainable Phuket
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Preface

Year 2012, stakeholders from all over Phuket Island came together to foresee 20 years ahead into the future. What they saw was a future where environmental problems are seriously taken into account, where development on the island is planned based on carrying capacity of its environment and natural resources……they expressed concern about some things that have to be done to ensure a good environment for the next generation and to secure their resources for tourism that they rely on.

The project was inspired by The AtKisson Group system of developing sustainable cities, all work on this project has been conducted on a volunteer basis, SEEK Phuket operates by leveraging peoples interest and passion.
Foreword

The Phuket I remember from 40 years ago is very different from the Phuket of today. At that time tourism had hardly touched the island, except for a few adventurous hippies and backpackers. Many of the beaches were largely deserted, with more nesting turtles than sunbathing tourists. There were no real estate developments on the hillsides or plastic bags littering the island. The way of life of local people was simple and unstressed. But in the last 40 years we have gone from 40 hotel rooms to 40,000 hotel rooms on the island. That is one simple indicator of the changes that have happened within half a lifetime. Of course there are many more.

Although sometimes we would like to, we cannot turn back the clock. What we can do though is think about and plan for the future in a more systematic way to create more sustainable outcomes, working towards a shared future vision of what we would like Phuket to become. That is why in 2012, stakeholders from all over Phuket Island came together to look 20 years ahead into the future, and define what they would like to see in the Phuket of that time. What they hoped for was a future where environmental problems are seriously taken into account, and where development on the island is planned based on carrying capacity of its environment and natural resources. Based on this they identified some things that we have to start doing right now to ensure a good environment for the next generation and to secure their resources for future sustainable tourism that they will depend on as one of the main economic engines of the island.

This process led by SEEK was inspired by The AtKisson Group system of developing sustainable cities. All work on this project has been conducted by many people on a volunteer basis. SEEK operates by leveraging peoples interest and passion, bringing people together to work with mutual respect, empathy and compassion. I like to summarise the approach with one word from Budhist philosophy “Galayanamitr”.

Dr. Charnnier Vorratnchaiphan
IUCN, Thailand Representative
Acknowledgements

Thank you to everybody that helped with this project in every way, from the sponsors to the school children that all donated their time and resources to realize this vision. The project was inspired by a holistic approach to Phuket's future encompassing all sectors and stakeholders in a fair and even manner.

Thank you to the government and the education establishments and to the Phuket governor for encouraging and supporting SEEK Phuket’s efforts.

Thank you to the SEEK Phuket management board for their tireless efforts to help Phuket especially our coordinator who does most of the actual work.

Special thanks to Robert Steele for inspiring me to do this project and for facilitating its fruition.

Finally thank you to the Phuket community who are actively working towards a sustainable Phuket.

Sean Panton
CEO&Founder, SEEK Phuket

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Introduction

This report is the result of a great many people’s voluntary participation and the generous support of a number of groups and organizations, both public and private. It represents the joining together of local people, local businesses, local government agencies, local schools & universities, local community organizations, and many individuals within Phuket Province.

Starting in January 2012, SEEK Phuket has worked together with these diverse stakeholders to develop a comprehensive and integrated set of 26 indicators that can keep us all informed about the current status of Phuket Province in relation to the goal of having a sustainable Phuket island community, one with a clean, green and biologically diverse environment, a prosperous, equitable and thriving ‘green economy’, a stable, cohesive and developed society, and healthy and happy people living a good quality of life. Altogether, there were 4 separate stakeholder meetings held to develop our final sustainability indicators.

1) SEEK Phuket Sustainable Indicator Workshop on 20-22 Jan 2012
2) SEEK Phuket Marine Indicator Workshop on 29 Mar 2012
3) SEEK Phuket / APEN Asian Student Eco Summit on 2-4 July 2012
4) SEEK Phuket Inaugural Conference & Forum "Sea, Sand & Sustainability / Seeking a Sustainable Phuket" on 24 August 2012

Findings, suggestions and recommendations from those who participated were taken very seriously by SEEK in order to develop the most relevant set of indicators that accurately reflect the current status of Phuket Province that cover all aspects of concern.

SEEK Phuket always welcomes your input on this ‘Living Document’. You can help contribute to us with related information, research studies, papers, useful reference sources, as well as send us feedback about the report. You can also participate in our future meetings and actions. We believe that local people know best and your support is essential for success of this report.

This document will serve as a public service document for all parties to use as a guideline. Our strategy is to use this as a teaching tool for the future generations as well as the current generation. It is a compilation of relevant issues and strategies chosen by the community of Phuket with a 20 year future perfect Phuket in mind, then refined and laid out into a simple format so we can all follow it.

Whatever business you are involved with and wherever you are from, if you live in Phuket, this document is relevant to you and you have the power to help.

This plan is a framework for Phuket’s future. It is a non-biased, non-commercial, non-denominational Thai and expatriate (farang) plan for people from all sectors to engage and act upon. We are VERY proud of the diversity of our group and the stakeholders that have been involved in this process and the different influences that have shaped this project.

There is a lot of work still to do that we will need support with. Our education and government partners will aid us with the data recovery necessary to populate the indicators and give them the ability to accurately represent where Phuket is now and gauge if we are going in the right direction in the future.
As it stands now the document is a compilation of indicators that represents the community passion and commitment to take responsibility for change into their own hands by offering a joint vision of what could be possible if we all work together for a sustainable Phuket.
What is SEEK Phuket?

“Sustainability” simply means the future we all want for ourselves and our children - a future of prosperity, clean air and water, strong and vibrant communities, healthy and happy people.

SEEK Phuket stands for Society, Environment, Economy & Knowledge - A sustainable Phuket.

SEEK Phuket is a coalition of people working together to help find solutions to the problems faced by Phuket as it grows as a tourist destination and sustainable community. Our vision is to have a sustainable Phuket where all sectors of society are in balance and working together to build a better place for all people.

SEEK Phuket creates links between the government, private sectors and NGOs to develop sharing and collaboration on the environment, enhancing communication, building relationships and offering support to projects enabling the community to flourish.

SEEK Phuket’s mission is to;

- Enhance the lives of individuals
- Support the growth of local communities
- Rebuild the environment
- Help corporations perform in line with their values & passion
- Offer support structure for Phuket Green Club initiatives
- Build relationship between the government, private sectors and NGOs
- Connect cultures and people
- Promote best practice

SEEK Phuket’s management board of volunteers have all been working in and around Phuket for a long period of time and have decided to form a coalition to try and help guide the future of this beautiful island.

SEEK Phuket Management Board 2013

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Title/Position</th>
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<tbody>
<tr>
<td>President</td>
<td>Dr. Robert Mather</td>
<td>Head of IUCN, Southeast Asia</td>
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<tr>
<td>Patron</td>
<td>Dr. Chamniern Vorratnchaipan</td>
<td>IUCN, Thailand Representative</td>
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<td>CEO&amp;Founder</td>
<td>Mr. Sean Panton</td>
<td>Director of CSR, Marriott Thailand</td>
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<td>Managing Director</td>
<td>Mr. Nick Anthony</td>
<td>Managing Director, Indigo Real Estate</td>
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<tr>
<td>Sustainability Advisor</td>
<td>Mr. Robert Steele</td>
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<td>Education Advisor</td>
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<td>Project Manager</td>
<td>Ms. Kanokwan Homcha-aim</td>
<td>CSR Coordinator, Absolute World Group</td>
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Phuket's Development Dilemma

Throughout its history, Phuket has always been a welcoming beacon, a jewel set in the crown of the Andaman Sea. From the arrival of the 1st Century BC Indian merchants to today's vacationers and retirees, Phuket's beauty and mystique have beckoned for those seeking paradise. Shopping, eating, swimming, world-class diving, or simply relaxing at the bar with an exotic, refreshing beverage - no matter what your definition of paradise, Phuket's sure to come close. Patong and Phuket Town, along with the surrounding magical Phi Phi Islands bring visitors from around the globe to Phuket, giving them a tropical taste of life in paradise. Shimmering white crescent beaches, sparkling blue water, and indulgences of every kind cater to young, old, families and the elite alike.

Up until the 1970s, Phuket had been largely underdeveloped. But starting in the 1980s, the sandy beaches on the western coast of the island have since been heavily developed into tourist centers, with Patong, Karon and Kata being the most popular ones, attracting swarms of tourists, from heiresses and Oscar-winners to everyday, average people. The industry continued to grow until the Tsunami hit the island on December 26, 2004, leaving tragic devastation in its wake, a dark day in the history of Phuket.

The hardest hit areas included popular Patong Beach and several other west coast towns, which suffered major destruction and killed 250 people. Phuket's economy sputtered just briefly, and within about a year, Patong had already rebuilt - a shining new Phoenix rising out of the ashes. Just a year later, few scars of the damage remained, and 80% of the tourist business returned to Phuket, jump-starting resort development once again.

Phuket's economy rests on two pillars: rubber tree plantations (making Thailand the biggest producer of rubber in the world) and tourism, with a thriving diving industry attracting thousands of divers each year. Property development and tourism, and rubber are Phuket's economic mainstays and the main income generators for most people on the island. Vast rubber tree plantations cover Phuket's inland areas, providing the raw materials for rubber production, helping Thailand retain its status as the world's top rubber producer.

Since the 2004 Tsunami, all damaged buildings and attractions have been restored. Phuket is currently going through an intensive period of leisure property development, with many new hotels, apartments and houses under construction. A total of 5,080 additional hotel rooms are expected to enter Phuket by 2015. In July 2005, Phuket was voted one of the World's Top 5 retirement destinations by the acclaimed Fortune Magazine. As of the 2010 census, there are over 520,000 people residing on the island, including some 115,881 foreigners, or 21.1% of the population. There are also an estimated 64,000 migrant workers from Burma, Laos and Cambodia. The numbers of tourists have increased from around 3 million visitors in 2003 to close to 13 million in 2013.

With so much human pressure, Phuket's environment has also undergone some dramatic changes over the past 50 years, with the last 7 years seeing the most impacts. All of the local marine habitats, including coral reef, mangrove forest, and the pelagic environment, are currently suffering impacts from various economic activities that contribute to the economic prosperity of Phuket and the region, including commercial over-fishing, shrimp-farming, sedimentation, pollution, marine litter and coastal erosion.

Five species of sea turtle nest on islands in Thai waters - leatherbacks, green turtles, loggerheads, hawksbills, and ridleys. All of these are endangered species, and they are less frequently sighted every year. Aside from more than 30 recorded species of sea snakes,
only other marine reptile in the region is the brackish-water crocodile, virtually extinct, a species which inhabits mangrove swamps and river estuaries along the southern peninsula. Even the pelagic environment, perhaps the least vulnerable of these habitats, has been so intensively fished since the introduction of trawl-net fishing in 1962 that commercial fisheries are threatened with being fished past their maximum sustainable yield.

While their rights and responsibilities in this regard are enshrined in the Constitution, there is as yet no coastal zone law passed to recognize, permit and control community-based management of mangroves, mud-flats, coral reefs and sea grass beds.

For the last 40 years, the coastal zone has been the scene of severe conflicts between small scale fishermen and large commercial fishing businesses; and between local communities and investors in commercial prawn farms, tourism and other development projects.

In many ways, the tragedy of the 26th December 2004 Tsunami spurred a renewed interest in a more integrated approach to Phuket’s development and environmental management, resulting in the rehabilitation of coastal ecosystem for sustainable livelihoods and disaster risk reduction.
The Sustainability Compass for Phuket Island

This sustainability indicator report will represent one of SEEK Phuket’s first major sustainability initiatives. The report describes in detail 26 critical indicator trends that will help to inform the people of Phuket whether we are heading in the right direction or not. These indicators are grouped into four categories based on the **Sustainability Compass**, which was developed by Alan AtKisson, one of the leading sustainability thinkers and innovators. The four cardinal directions of the Sustainability Compass are: Nature, Economy, Society, and Well-Being; and the Compass we use to orient our journey in the direction towards sustainability.

**Nature** refers to our environment and our ecological heritage. Phuket has been blessed with an abundance of natural features which provide sustenance to our society and economy. Therefore, we must do everything in our power to safeguard and improve our natural environment and the ecosystem services that it provides us for future generations. We also have an obligation to do our part to take care of the global environment as well.

**Economy** is the vitality, prosperity, and wealth of our province and its communities, generated by our leading economic sectors, including tourism, agriculture, and fisheries, but also by the work all of our citizens, in every walk of life. Our region has undergone tremendous economic changes in recent decades and we must continually redevelop our local economy to participate successfully in ASEAN and the global economy.

**Society** is the sum total of all the collective social institutions, systems and relationships that make our communities strong, from government to education to volunteer groups of all kinds. Without a strong society in our region, we cannot hope to sustain our progress.

**Well-Being** is what we all hope for as individuals, for ourselves and our families — health, long life, and a sense of satisfaction and fulfillment of one’s potential.

Together, these four dimensions of sustainability comprise the “Compass of Sustainability,” a symbol for our efforts to steer a new and more sustainable course for our region. We have been developing a

This systematic approach has been adopted by a variety of cities and regions as they strive for a more sustainable future. Pittsburg, Orlando, Nile Delta and even New Orleans after hurricane Katrina. [www.theatkisssongroup.com](http://www.theatkisssongroup.com)

This project is part of an ambitious citizen- based program to stimulate local sustainability initiatives all over our region. While we do hope for harmony among all the sustainability initiatives that result, we don’t expect uniformity. We invite you to adapt this to your specific needs, in addition to harmonizing your effort with ours as much as possible.
Our Sustainability Indicators

This report highlights 26 indicators of sustainability for Phuket. They are broken down into 4 domains of the AtKisson Sustainability Compass point; North – Nature, East – Economy, South – Society, and West – Well-being.

We strongly encourage you to read the entire report and visit www.myseek.org. Below is a Guideline to get to understand the rationale of proposing each indicator:

The indicators were developed with a Sustainable Phuket in mind. Visioning exercises inspired this set of final indicators for monitoring Phuket’s future journey to a Sustainable Society.

Each Indicator is identified under a specific Aspect of the particular Compass domain. For example (Nature Aspect: Protected Area Management or Economy Aspect: Considered Consumption)

For each Aspect page, there are two columns.

The first column addresses the Sustainability Challenge we face in the particular Aspect, followed by the Goal that SEEK and its Stakeholders have identified that they want to achieve here, followed by a proposed strategy of action, or actions that will be pursued toward achievement of the particular Goal. Finally, one or a set of baseline and performance indicators are listed that will allow SEEK and the island’s stakeholders to align strategies to be more effective and to track progress toward our ultimate Goals, and overall Goal, as Sustainable Phuket.

The second column is a narrative that is separated into two parts.

The first part is a short explanation of why each specific Aspect is so important to Phuket’s future Sustainability.

The second part describes the trends related to the Aspect, Challenge and Goal as best we can summarize at this time. The data will ultimately provide the true trend of where things are heading and how fast.

Lastly, we identify possible source of data or potential partnership to collect the data going forward.

We expected to finish gathering information on the current status of Phuket by the end of 2014 contingent upon a year of necessary technical support.

Meanwhile we will use this document as our vehicle for change to inspire and align the Phuket community.
1. Phuket’s coastal environment enjoys continuous excellent water quality, with clean beaches that exhibit a natural condition to a large extent.

2. Designated coral reefs around Phuket, as well as around the offshore islands, are fully protected by law and are maintained in a good quality and healthy condition with no net loss.

3. Phuket’s protected terrestrial and marine conservation areas are fully protected by law with zero cases of encroachment.


5. Phuket will reduce its overall carbon emissions to 15% less that 1990 level (as a baseline) by 2030.

6. Phuket is able to maintain a diverse mosaic of healthy ecosystems that ensure the continued flourishing of the island’s rice terrestrial and marine biodiversity.
**Nature Aspect 1**  Coastal Management / Sustainable Beach Program

**Why this issue important for Phuket’s Sustainability?**

Tourism is one of two mainstays of the Phuket economy, and almost all tourists come to Phuket for its famous white sand beaches and clean, aqua blue marine waters. These natural treasures are directly influenced by coastal development planning, pollution, construction, zoning law enforcement, business licensing, density of vendors, and litter management, to name but a few. If Phuket’s beaches are consumed by litter, extensions of restaurants and bungalows, lounge chairs and umbrellas, vendors and jet skis, the accumulative effect will soon overwhelm nature’s resilience mechanisms. It will not be too long before Phuket will lose the very attributes that its success has been built upon. Not to say that tourism will stop, but most likely the outdoor activity and nature related tourism will be replaced by another type of tourism that we all do not want.

**The Challenge:**
Phuket’s coastal marine environment, particularly its famous beaches and water quality are in a state of degradation and decline.

**Our Goal:**
Phuket’s coastal environment enjoys continuous excellent water quality, with clean beaches that exhibit a natural condition to a large extent.

**Proposed Strategy:**
Empower and enable community volunteer groups to take ownership and responsibility for beach conditions and water quality monitoring, and education for fishing fleet on waste proper management.

**Sustainability Indicators:**
- Marine Water Quality Index (BOD, PH, Fecal Coliform)
- Beach Quality Index (5 star system)

**What is the Trend?**

The Phuket Marine Biological Center has implemented a coastal environment monitoring program for 23 stations along the coastline of Phuket. Some principal parameters collected for every 2 months include salinity, temperature, pH, dissolve oxygen, suspended sediment, nutrients and total coliform bacteria. The result found that Marine water quality was generally found in good condition, except in some stations and during certain period of time that the quality was in fair or poor conditions.

**Possible Sources of Data**

Department of Marine and Coastal Resources: Phuket Marine Biological Center, Ministry of Natural Resources and Environment: Pollution Control Department
Coral reefs are one of the most spectacular underwater environments, benefiting people and the natural world far beyond their boundaries. They safeguard lives, economies and cultures, stimulate tourism jobs and opportunities, act as safe harbors, protect against erosion, provide food to sustain local diets, contain 10% of the world’s fishing harvest, play a key role in nutrient cycling, and hold the prospect of scientific and medical advances we are only beginning to comprehend. Yet over 60% of reefs globally are either severely damaged or threatened with immediate damage unless something changes soon.

Phuket’s reputation as a world-class tourism destination relies to a great extent on the health of its marine environment and ecosystem, as many people come to Phuket to enjoy snorkeling and scuba diving at some of the world’s most spectacular reefs. Thus, it is imperative to protect Phuket’s and Phang Nga Bay’s remaining coral reef and to work to restore damaged reef to new health.

**Possible Sources of Data**
Department of Marine and Coastal Resources: Phuket Marine Biological Center, Marine and Coastal Resources Conservation Center No.5 (PHUKET), Worls Wildlife Fund
Why is this issue important for Phuket Sustainability?

Ecosystems services are something that we all need, but take for granted, as we never ‘cost account’ for them; i.e. we expect clean water, clean air, nutrient cycling, beautiful scenery, stunning diving experiences, delivery of clean water, abundance of fresh seafood, shade, beauty, place for outdoor recreation, but we behave as if these services are free, whether we are business or individual. However, we cannot enjoy a healthy and good quality of life, prosperous business, or social development without these services, which are primarily delivered from the few protected areas such as national parks, watershed protection areas, conservation forests, marine reserve area, etc.

For the continued prosperity and quality of life that Phuket enjoys now, it is imperative that Phuket protect against any encroachment on these protected areas that are already established, as it is almost impossible to restore them once they are destroyed.

What is the Trend?

Forest land encroachment in Phuket province followed a cabinet resolution which allowed people to occupy the land in 1975. Many natural resources and much forest were destroyed during the next 37 years. In Phuket and Phang Nga, it was found that almost 70% of forest areas have been encroached on. Problems in these two provinces are primarily due to cases where landowners are registered companies in which shareholders are Thai nominees of foreign investors. Among some recent specific encroachment cases are complaints of encroachment at Baan Kuku in Phuket’s Rassadasubdistrict, specifically on 50 rai of the Chee Lao mangrove forest beside the ThaJeen canal, which separates KohSireh from Phuket. There has also been a recent investigation into 14 plots allegedly encroaching on Sirinat National Park on Phuket’s west coast.

Source of Data

Royal Forest Department, Department of National Parks, Wildlife and Plant Conservation, Regional Environment Office 15 Phuket, Office Of Natural Resources and Environment Phuket Province
Why is this issue important for Phuket Sustainability?

Phuket’s landfills are now full and we must burn much of the garbage in the island’s incinerator, which adds to both air pollution and carbon emissions, and sending it off the island to landfills in other provinces is costly and potentially creates conflict with other communities where the landfill is situated.

Litter is the most visible indicator of unsustainable development and a deteriorating environment. It also reflects a level of, or lack of, environmental awareness, values and behaviors of the people that live in that particular place. For Phuket, it is a problem that plagues almost all areas of the island and takes away from the luster and world class status of Phuket in many people’s eyes. When it is washed up on and littering beaches then it effects tourists’ perceptions of the island and the quality of their holiday experience.

Aside from the visual impacts of litter, it also has a tremendous impact on both terrestrial (land) and marine ecosystem functions and species. It take plastics a long time to degrade, but they do break down in to smaller pieces and particles that actually become much more dangerous to the animals that ingest these small pieces and particles.

What is the Trend?

Every day, more than 700 tonnes of consumer waste enters the island’s collection and disposal system. This does not include all the litter discarded into the sea, canals, and onto public and private property, roads and parks. When this is taken into consideration, the daily amount of garbage produced and discarded in Phuket is probably closer to 800 tonnes.

Source of Data

Phuket Provincial Governor’s Office, Phuket Provincial Administrative Organization, Phuket City Municipality Incinerator, local junk shop, recycling collection businesses, Reef Check, Phuket Green Clubs
Why this issue important for Phuket’s Sustainability?

Carbon dioxide has contributed to more than 70% of total greenhouse gas concentration in the atmosphere leading to the deleterious effect from climate change and global warming. Due to economic development and population increase, electricity demand growth in developing countries has lead to increasing CO2 emissions in the power sector. The impacts of climate change will significantly affect an island community like Phuket, more and more in the future, especially as ocean temperature rises along with sea level. Both of these changes will greatly affect the beaches, the coral reefs, and thus tourism.

Increase frequency of extreme weather events like rainstorms and typhoons may cause significant damage to the island’s infrastructure and also cause loss of life. Energy efficiency measures, behavioral change on electricity use and transportation choices by individuals, businesses and government can all contribute to reducing CO2 going into the atmosphere and, hopefully, averting the worse predicted impacts of climate change in the future.

What is the Trend?

The Ministry of Energy continues to push its Renewable Energy Policies towards the promotion of alternative energy such as Bio-fuel (Gasohol, Biodiesel) and Natural Gas for Vehicles (NGV), in parallel with campaigns urging for efficient use of energy.

Source of Data

Thailand Greenhouse Gas Management Organization, Office of Energy Phuket Provincial
Why is this issue important for Phuket Sustainability?

Imagine Phuket with no birds, monkeys, frogs, lizards, fish in the coral reefs, etc.? Biodiversity is crucial to life on Phuket and to its tourism industry. Tourists who come for diving and snorkeling do not come to see an empty sea, and the same can be said for the forest areas of the island that are also tourist sites. Food security and its implications to a large segment of the local economy is another reason that this issue is so important for the Nature Compass Point for Phuket's sustainability.

What is the Trend?

Five species of sea turtle nest on islands in Thai waters - leatherbacks, green turtles, loggerheads, hawksbills, and olive ridleys. All of these are endangered species, and they are less frequently sighted every year. Aside from more than 30 recorded species of sea snakes, the only other marine reptile in the region is the brackish-water crocodile, virtually extinct, a species which inhabits mangrove swamps and river estuaries along the southern peninsula.

Even the open ocean, perhaps the least vulnerable of these habitats, has been so intensively fished since the introduction of trawl-net fishing in 1962 that commercial fisheries are threatened with being fished past their maximum sustainable yield. Phuket fishing fleet is too extensive and fishes too close to the shores.

Source of Data

Royal Forest Department, Department of National Parks, Wildlife and Plant Conservation, World Wildlife Fund, International Union for Conservation of Nature, Phuket Marine Biological Center
Economy Compass Point
List of Goals

1. Development of a ‘Sustainable Tourism’ model that manages the positive growth of the sector in a way that does not create negative impacts to the island’s environmental integrity social development, harmony, and cultural identity.

2. Catalyze the development of an extensive “green” public transport system and green mobility infrastructure that connects all the major beach destinations, communities, Phuket city, and the airport.

3. All major retailers operating on Phuket Island actively promote and participate in low-impact green consumption by banning or significantly reducing plastic bags, packaging and Styrofoam.

4. The Phuket business community supports a thriving “green economy” with the proliferation of environmentally certified green, low-carbon products and services.

5. Phuket is an energy efficient low-carbon economy powered by clean renewable energy.

6. All urban planning and land development is based on sustainable urban planning principles & practices, credible science, and effective law enforcement.
Phuket is Thailand’s most popular beach resort, attracting almost nine million visitors a year. The island resort rightly has a reputation for mass tourism with both the benefits and the ills that it can bring. Currently, the “ills” seem to be gaining prominence as is reported frequently in the media. Phuket is, thus, at a critical crossroads with respect to its future, and must choose consciously or unconsciously which road it will follow.

Increasing numbers of tourists certainly translates into higher economic growth for the local economy, income and its residents, but at the same time there is an ever increasing costs to this success. This manifest in traffic congestion along Phuket’s main roads; beach encroachment; unbridled resort and infrastructure development in highly sensitive ecological environments, overcapacity use of certain sites, syndicated transportation, entertainment and tourism services, decreasing quality of service, overconsumption of seafood species, generation of tonnes of solid waste, contributing to all forms of pollution. All of these problems are already directly affecting the island’s image in the short term, and overall competitiveness and sustainability in the long term.

Why is this issue important for Phuket Sustainability?

Tourist numbers are increasing rapidly, but there is a threat that the numbers will overwhelm the island’s ability to sustainably manage its environment and social development.

Our Goal:

A ‘Sustainable Tourism’ model that manages the positive growth of the tourism sector in a way that does not create negative impacts to the island’s environmental integrity and social development and cultural identity.

Proposed Strategy:

Collaboration between residents, local government, higher education, and businesses in developing and implementation of a sustainable tourism standard operating procedures (SOPs), guidelines and assessment framework for different sectors.

Sustainability Indicators:

- Number of Phuket tourism related businesses that conduct sustainable practices.
- **Tourism Consumption Index** that measures demand side choices of tourists in different areas (e.g. food, energy, waste, biodiversity, social, etc.)

Note: Both indicators will need the development of specialized measurement instruments

Source of Data:

Tourism Authority of Thailand Phuket Office, Phuket Tourism Association, Thai Hotels Association, Prince Songkla University
Why is this issue important for Phuket Sustainability?

Cities are shaped by their transport systems, and for Phuket, this is one of the most contentious issues there is. There is a general lack of reasonably priced transportation options, as the island taxis and tuk-tuks syndicates have an inordinate amount of power on any decisions or actions by the government or private sector to implement more affordable and efficient transportation options. There is also little to no infrastructure available for individual transportation options beside using a motorized vehicle. Biking and walking are not safe options on the busy roads of Phuket.

The consequences of Phuket’s current transportation situation include traffic congestion, road safety, air and water quality, overall environmental quality, energy consumption, carbon emissions, and could tarnish the reputation of Phuket as a premiere tourists destination and investment opportunity.

What is the Trend?

There is no formal data available, but there has been an obvious increase in negative media stories on this issue, and there has been recent incidences of outside country governments issuing warning to their citizens about travelling in Phuket because of transportation related safety issues. If this trend continues to increase, then it will have severe consequences for Phuket’s tourism reputation and the overall sustainability of Phuket in all dimensions (social, environmental, and economic).

Recently Phuket city has been planning to have electric public transport develop for the 3 main roads around the island. This is addressed in the Phuket Development Plan (2015-2018), so this can be transportation options for both local people and travelers.

Source of Data

Phuket Provincial Land Transport Office, Sub district Administrative Organization
**The Challenge:**
The ever-present plastic bag and Styrofoam containers are now fully entrenched in the retail transaction process and retailer/shoppers mindset. The challenge is to get people to switch to green alternatives.

**Our Goal:** All major retailers operating on Phuket Island actively promote and participate in low-impact green consumption by banning or significantly reducing plastic bags, packaging and Styrofoam.

**Proposed Strategy:**
Campaigns to promote the use of alternatives to plastic bags, and voluntary plastic bag ban for major retailers, and plastic and polystyrene ban as local markets.

**Indicators:**
- Number of retailers and market vendors actively participating in plastic bags reduction campaign.
- Numbers of plastic bags not used (as measured by number of plastic bags offset by customers using their own bags, alternative container, green bag, or no bag).

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*Why is this issue important for Phuket Sustainability?*

Phuket is a province of consumption, which is natural as it is a well-known tourist destination. More than 700 tonnes of garbage and waste generated in Phuket per day, which an inordinate amount of this being the ever-present plastic bags that proliferate in Thailand. Virtually all takeaway food in Thailand is packed in plastic bags or, increasingly, in equally environmentally harmful Styrofoam containers. A Study presented in 2009 says that the recovery rate of plastic waste in Thailand in 2000 was only 23%

*What is the Trend?*

Tesco Lotus, on a drive to reduce plastic bag usage at its stores in Thailand has reported that it had cut the use of 8 millions plastic bags used the store last year (2012), through a variety of measures. Tesco’s goal in 2013 is to reach the 12 million plastic bags not used.

Right now, people in many sectors have gained awareness to this issue and cooperate to promote plastic bags reduction campaign. However, to make it success we need continuation of the campaign and collaboration/participation from other sectors of the society.

*Source of Data*

The leading major retailers operating on the island (e.g. Tesco Lotus, Big C, 7-Eleven, the big shopping malls, etc.)
Why is this issue important for Phuket Sustainability?

In Thailand, and Phuket, resource use is excessive, wasteful and inefficient. Emphasis is now placed on altering consumption patterns to achieve reduced material and energy use through labeling and certification schemes. This strategy aims to reduce the economic costs of dealing with plastic bags and unneeded packaging, the unhealthy effects of chemical based farming to produce the food that retailers sell to the public, or increased climate change stemming from carbon emissions. There are a number of initiatives now in Thailand toward green labeling. First, the Cabinet Resolution in 2008, sets the goal to increase government’s spending on environmental friendly products and services. Two other key programs include:

The Green Label is an environmental certification awarded to specific products that are shown to have minimum detrimental impact on the environment. The Thai Green Label Scheme applies to products and services, not including foods, drinks, and pharmaceuticals. The Green Leaf Certification is designed to recognize hotels, which have passed the standard quality assessment and demonstrated their practical commitment towards environmental preservation and the efficient usage of energy and natural resources. Hotels which pass the audit receive up to five levels of “Green Leaves”. Phuket will benefit greatly from the growing market for environmentally-friendly products through promotion of organic, green, and eco-label products.

What is the Trend?

There is good news for customer interest in and uptake for ‘green’ type labeled products. Research has shown that the Thai appliance labeling program is having a significantly greater impact on the consumer appliance market than the 20-year-old U.S. program. Thai salespeople reported that more than 60% of consumers ask about or look at the label. The corresponding number for the United States was just 20%.

Source of Data

The leading major retailers operating on the island (e.g. Tesco Lotus, Big C, 7-Eleven, the big shopping malls, etc.)
Why is this issue important for Phuket Sustainability?

Phuket, like other cities around the world, must embrace sustainable energy for many reasons, reduction of carbon emissions, energy costs volatility and security, among others. The good news is that the technologies that promote sustainable energy use are now becoming price point affordable, with a reasonable ROI, coupled with the placement of incentives from the central government for independent power producers. The other good news is that there is a huge potential for solar and wind power in Phuket. Due to the country’s abundant solar capacity and attractive solar feed-in tariffs offered between 2007-2010 and recently in mid-2013. Thailand has most of the ingredients for solar power to play a major role. Furthermore, the Thai government reopened a feed-in tariff (FiT) program for rooftop and ground-mounted solar power investment in July, 2013. The government will support 200 MW of rooftop solar power through these policies.

The other sustainability reason for Phuket to shift to an energy efficiency focused economy is that investing in energy efficiency and renewable energy productivity can create new jobs, foster economic growth, and reduce energy costs for families and businesses.

What is the Trend?

Given the fact that energy consumption in Thailand has risen by approximately 47% over the past 10 years, the central government is currently working to increase renewable energy sources. Thailand’s 15-Year Renewable Energy Development Plan (REDP 2008 – 2022) has a target for renewable energy to be 20%, of the final energy demand in the year 2022, equaling up to 5,608 MW and producing 26,500 GWh of power generation. Thailand is now South-East Asia’s biggest solar power producer.

Not long ago, the total cost to produce one watt of electric power from a Solar PV cell was around US$100. Since then, the price of solar PV panels has dropped more than 80%. Currently, this price has gone down to lower than US$1 per watt – a price that is competitive with the cost of traditionally generated energy in many areas around the world.

Source of Data

Ministry of Energy: Office of Energy Phuket Provincial
Phuket Sustainability Indicator Report 2013

Why is this issue important for Phuket Sustainability?

There has been massive land development in coastal areas of Phuket over the past five years. Over 100 areas on the coast and mountains, especially western beach areas such as Patong, Ka Ta, Karon and Kamala, were opened and dredged to build resorts. The large number of building and land projects accelerates the amount of sediment flowing into the sea, harming reefs, aquatic animals and plants.

Many resorts and hotels are now being built in the mountains near coastal areas reserved for the tourist industry. These land development projects have massive negatively impacts on the marine ecosystem. When heavy rains hit the island, soil and sediments rush unimpeded to the sea, covering coral and other marine habitats with sand, stones, and sediment. Though the short-term impact is not so noticeable, in the long-term, these marine resources will be totally destroyed.

What is the Trend?

The long-term result of Phuket's wild roller-coaster ride down the development superhighway can be predicted – somewhat. The trends are there for us to see today, with many of them set in concrete that promises to stand another 100 or more years. The central, urban areas of the island are disappearing under the encroaching cloak of concrete at an alarming rate, and in a distressing, treeless manner. Reports suggest that the condo market in Phuket has grown by 20% in the past two years. In 2013, individual villa sales increased by 20%, according to the latest analysis from CBRE, and the number of completed villas in the fourth quarter of 2012 reached 2,789 units and demand for affordable villas will continue. In the North West Coast including Patong, there are 1,999 units in the pipeline, which are expected to be completed by the end of 2015.

Source of Data

Department of Public Works and Town & Country Planning
Society Compass Point
List of Goals

1. The citizens/people of Phuket feel connected, engaged, responsible and actively participate in community activities and development.

2. Environmental Education (EE) and Education for Sustainable Development (ESD) are fully incorporated into all Phuket schools’ curriculum, management, and school culture.

3. Phuket’s business community is actively engaged in improving Phuket’s community sustainability through their CSR activities and programs.

4. The people of Phuket have a zero acceptance for corrupt practices by government officials or cons and scams on tourist.

5. Cultural traditions are honored and valued and important historical landmarks and cultural rites, beliefs and lifestyles are preserved in a way that add value to the island’s quality of life and economy.

6. Phuket government and private sector businesses develop and enact policies and support infrastructure to fairly address the needs of people with disabilities.
Why is this issue important for Phuket Sustainability?

Phuket is famous for its Vegetarian festival, which brings the community together for a week of celebration. Many people and groups participate to make this an iconic and successful event. However, getting this same level of engagement and participation to act on the “dirty work” of sustainable development, whether it be beach clean ups, tree planting, community improvement projects, etc. is not as easy. Engaging individuals and groups in community planning and action processes is key to both quality of life and sustainability. Everyone must be included, because people that are not included in the thinking, planning and decision-making processes of a community, will feel cut out from the very opportunity structures they need to change difficult life circumstances. Inclusion creates “buy-in” and increases the desire to participate in solutions to challenging problems. The knowledge and perspective of all communities is vital to turning visions for sustainability into reality.

What is the Trend?

Though there is only limited data, a growing number of groups and individuals are organizing and taking action on various issues around the island. For example, over 1,000 people turned up to help clean up the beach around Phuket for Clean Up the World Day in September 2013.

Source of Data

Phuket Provincial Administrative Organization, Subdistrict Administrative Organization, organizations that organize events.
Why this issue important for Phuket’s Sustainability?

EE and ESD both represent a relevant means of prevention of further and future environmentally unsustainable practices because this type of education encourages learner's awareness of their environment's ambient conditions, as well as their active participation in solving local problems. **It is the need of the hour to propose environmental education** with the essential elements of moral philosophy. Conventional educational methods are no longer adequate for the real needs of tomorrow.

An ESD approach means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. A reorientation of education through ESD and an eventual transformation of education in Thailand as a whole, and Phuket, will be critical for the future environmental sustainability, social development and stability, and economic competitiveness in the 21st Century. This will be especially important with the beginning of the ASEAN Economic Cooperation programme beginning in 2015.

What is the Trend?

It is not known how many schools in Phuket integrate EE and ESD into their core curriculum, extra curricular activities, and overall school culture. Also, the capacity and competency of teachers for incorporating EE / ESD into their teaching is not known. However, a good role model to follow would be the Srinagarindra, The Princess Mother School (SWPK) at Saphan Hin, south of Phuket Town. This school recently signed an MoU with CERES Community Environment Park in Melbourne, Australia that makes the Thai school part of the Australian Sustainable Schools Initiative (AuSSI) which seeks to explore nature through real-life learning experiences and to improve schools’ management of resources such as energy, waste, water, biodiversity and landscape design. The vision is for schools and their communities to become sustainable.

Source of Data

Most likely SEEK will need to work with the local NGOs, and the local education office to develop a valid assessment instrument and to survey all Phuket schools.
Why is this issue important for Phuket Sustainability?

CSR or Corporate Social Responsibility has become a very important part of business operation nowadays. CSR can involve a range of activities such as working in partnership with local communities, socially sensitive investment, developing relationships with employees, customers and their families, and involving in activities for environmental conservation and sustainability.

CSR proved to have many roles and the brought impacts to the community as follows: Closer ties and interdependencies between corporations and community, sharing the costs the society has to pay due to environmental degradation, transfer of technology from international companies to developing countries, environmental protection measures that done together by corporation and the communities, poverty alleviation in the communities, human rights advocacy, and helps in data gathering by ICT firms to facilitate public organization functions.

What is the Trend?

A number of the large hotels such as the Marriot, and others are leading the way in showing the benefits and effects of being socially responsible corporate citizens by working with communities and NGOs to take action that improve the environment, wellbeing and livelihoods of people on Phuket.

Source of Data

Phuket businesses’s website and CSR Reports, Media coverage
Why this issue important for Phuket’s Sustainability?

As quoted from Phuket Wan Tourism News (16 September 2012), “a sustainable future for Phuket and for Phuket tourism cannot be achieved by tinkering. It can only be achieved by first ending corruption.” It's corruption that packs Phuket's once-beautiful public beaches with more and more commercial operations. Corruption is the reason building developers are allowed to flaunt laws that restrict building above the 80-meter height limit…”

Corruption is not only linked to social and economic development, but also to environmental sustainability. While corruption is not environmentally destructive in a general sense, poor governance results in bad policy formulation, management, and enforcement, and this can become apparent through problems with environmental sustainability. Corruption contributes to lax enforcement of environmental regulations and an ability on the part of producers and consumers to evade responsibility for the environmental harms they cause”.

The question for the people of Phuket, like the rest of Thailand, is “can we continue to allow certain people and groups to ignore the law for their own economic interest (for the small few) at the detriment of the overall society and it’s future”? A cultural erosion of ethics and morality let to continue will bring down that society, history guarantees us this.

What is the Trend?

Earlier this month (August 2013) the Department of Special Investigation (DSI) was installed in Phuket with the remit of uncovering, exposing and stopping corruption.

Source of Data:

English and Thai language media.
Why is this issue important for Phuket Sustainability?

Unlike many Thai provincial capitals these days, Phuket’s Old Town, along Thalang and Dibuk Road, is a cultural heritage treasure that has been beautifully preserved up to now. Phuket Old Town was built on riches reaped from Phuket’s tin boom of last century. In this historically rich part of town there are traditional Buddhist and Chinese temples, ornate and beautifully preserved Chinese 'shophouses', grandiose Sino-colonial mansions, quaint cafés, tiny printing shops, impromptu private massage parlous.

Some parts of Phuket Town are more modern, especially around the edges, with shopping malls and new houses, but the old town remains a great place to explore, full of historical interest.

If Phuket’s traditions disappear, the younger generation may not know who their ancestors were or where they came from. It is about history and educating the young.

What is the Trend?

A major boom for heritage preservation may soon be on the cards for Phuket following the announcement last month that the Senate Committee had asked the Culture Ministry to secure a coveted United Nations heritage listing for buildings in Old Phuket Town. The community has really started to realize how important the architecture is,” That some of the dwellings have been turned into guesthouses is a positive development because both foreign and domestic tourists love to stay in the area.

Source of Data

Phuket Cultural Office, Tourism Authority of Thailand Phuket Office
Being disabled in Thailand is not an easy experience as there is little if any infrastructure available in cities to help facilitate. Traditionally in Thailand disabled people have been regarded as unemployable, although this attitude is changing. However, there are still few opportunities for disabled people to receive the training necessary to become independent contributing members of society. Although there are many people willing to give aid to disabled people, there is not much help in integrating them fully into Thai society.

Consequently there are very few facilities available to help disabled people living in or visiting Thailand. Public transport, private and government building provide very little in the way of disabled access, if any. There are very few public toilets and those that exist are not designed for those with limited mobility. Moving around Phuket can be extremely difficult for disabled people. The streets and pavements are uneven and often blocked with shop advertising boards. Very few buildings provide ramps and handrails to aid disabled access. Guide dogs are rare and there are no audio signals for the blind on traffic crossings.

What is the Trend?

Since the Persons with Disabilities’ Quality of Life Promotion Act came into effect in September 2007, more and more employers have been complying with the law. In 2009, employers contributed Bt80 million to the NEP fund, while last year the figure rose to Bt100 million. In 2009, 6,197 of 6,547 organizations announced they would employ disabled people, with 3,814 such people finding employment. Last year, a total of 5,525 organizations, each with more than 200 employees, or 84.39 per cent, followed the law by hiring disabled people, while only 1,022 organizations or 15.61 per cent did otherwise. After the new regulation comes into effect, it is expected that 12,624 qualifying organizations covering 4.63 million workers will hire 46,362 disabled persons as part of the special quota.

Source of Data

National Office for Empowerment of Persons with Disability (NEP)
http://www.nep.go.th/home.php
Wellbeing Compass Point
List of Goals

1. The people who live and work in Phuket enjoy an optimal level of physical and mental health, as well as overall individual and community wellbeing.

2. Phuket is safe for everyone at all times, everywhere.


4. The people who live and work in Phuket have a good sense of individual and group identity with strong links with their local neighborhood and community and the greater Phuket society, which translates into active participation in community development/betterment activities.

5. All Phuket residents and visitors have equal and adequate access to public green spaces and natural areas within 5 kms of where they live or stay.

6. Phuket is ranked #1 with regards to road safety in Thailand.

7. All Phuket residents enjoy sufficient and clean water continuously.

8. Zero cases of Dengue Fever.
Why is this issue important for Phuket Sustainability?

Over the past couple of decades our traditional view of health has been changing to encompass a holistic philosophy. Health and wellbeing are interdependent; prevention as important as cure; and long-term solutions as necessary as treatment.

The people and communities of Phuket, like any community of its size, nature, economic conditions, social demographics, etc., is confronted with diverse social values and morals alongside new consumers stimulus to eat and live in ways that are different than what was traditionally the social norm here.

Some of these introduced and emerging western habits or trends are quite bad (both on the surface and underneath), while other new habits and values that are untraditionally way.

For Phuket to become a healthy community, people must place greater emphasis on understanding the impact of lifestyle choices.

What is the Trend?

Phuket is also quickly becoming known as a top destination for health related holidays, with meditation, yoga, spa, sports training and adventure activities becoming the key focus of a growing number of people. New facilities on the island include foosball pitches and international standard venue such as Thanyapura.

Source of Data

Phuket Public Health Department
Why is this issue important for Phuket Sustainability?

The Phuket News Headline for January 1st 2013 states boldly: “Phuket 2012: Crime Takes Center Stage”. The articles highlights a number of high profile crimes committed by both Thais and foreigners. If this trend continues untreated (even as total crime figures have declined according to Phuket’s police department), it could easily have serious ramifications for the continuing good reputation of Phuket as a safe destination for tourists.

The perception of public safety, or unsafety, whether real or only perceived is vitally important to the continuing economic prosperity of Phuket going forward since perception, not real data, is what people tend to make decisions based on, and in this case.

What is the Trend?

In 2008 the number of crime cases in Phuket ranked 23rd in Thailand, however, the ratio per population put Phuket at No. 3 on the country overall.

Source of Data

Phuket police department, Phuket’s leading newspapers
Why is this issue important for Phuket Sustainability?

Every year, 30 people or more drown off the beaches in Phuket. Some cases can be attributed to natural causes like a heart attack. However, a lot of cases are because people who cannot swim get tripped up by waves as they walk and play in the deceptive shallows and get carried out by a rip tide. But there are too many cases of young, healthy people who can swim who are becoming victims.

Beaches have the international red flag symbol for “dangerous conditions / no swimming”, but often these flags are ignored, either on purpose or for the reason that people do not actually know what the flag means. There are of course now trained lifeguards on Phuket’s beaches, but these are not in enough numbers and cannot cover all the beaches properly. For example Surin beach is over 350 meters long.

Why this is a sustainability issue for Phuket, is because people who are visiting Phuket on holiday, which should be a time for happiness and fun, are dying instead, and in alarming enough numbers that some foreign governments have expressed strong concerns to the Thai government about this trend, and even issuing travel warning to their citizens, which can convince people to choose a different holiday destination. Phuket wants to be known as a top holiday destination for a high quality and safe experience.

What is the Trend?

In 2009, drowning ranked 4th for the cause of death in Phuket among local residents.
Why is this issue important for Phuket Sustainability?
Community engagement refers to interaction that a person has with others in their community and the community as a whole. Community engagement provides the opportunity for social connectedness, which enables people to achieve shared goals. Social connectedness is linked not only to the health of individuals but to the health of communities. Encouraging people to identify with and contribute to their community has important social, environmental and economic benefits. Feeling connected to a community encourages a person to have a voice and contribute something positive to their community. Not feeling connected is a big issue for communities looking to create a safe place for all, and a community that actively participates in continually improving the whole community, not just the parts with money or high land values.

Phuket is a province of people from other places, whether we are talking about the 10 million tourists who visit the island on their holiday per years, or the estimated 68,000 Laos, Cambodian and Burmese workers, the 100,00 expat residents, or the many migrant Thai workers from Northeast Thailand and other places. The rise in crime, drug smuggling and use, and other social ills in some way is related to this “transient” un-connected feeling that this people have to the land, culture and society of Phuket. Another problem is that we have people from other provinces coming to Phuket to earn a living, but these people don’t have any sense of belonging, of wanting to look after their hometown.

What is the Trend?
Many community-based group and organizations have been formed all over the island, for example, there are 41 civil society groups, 8 Green Clubs, and 103 Natural Resources and Environmental Protection Volunteer network.

Source of Data
Phuket Community Development Office
## Why this issue important for Phuket’s Sustainability?

Open space provides recreational areas for residents and helps to enhance the beauty and environmental quality of neighborhoods. People living in urban areas with more green spaces enjoy greater wellbeing than those residing in cities lacking gardens and parks. This is the findings of research published in the journal Psychological Science (2013), which found living in greener areas results in individuals reporting higher life satisfaction and less mental distress. Parks also contribute to public health by helping to mitigate air pollution, noise and other environmental stressors and by acting as green buffers between industrial areas and residential neighborhoods. Phuket is still very green, with lots of natural areas and agriculture.

## What is the trend?

In 2005 the Central Government promoted the “One Tambon, One Park” initiative which was aimed to have at least 8,000 square meters in each tambon in the country. At that time, only 3 tambons chose to pilot this initiative. Since then, public parks in Phuket have become very popular with both residents and visitors. In recent years, the relevant district authorities have developed public parks in their areas to keep up with the growing demand of Phuket’s increasing community. Currently there are 20 public parks in Phuket, but these are not evenly distributed to all communities.

## Source of Data

Phuket Provincial Administrative Organization, Phuket Municipality, Phuket Forestry Office.

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### Access to Public Parks & Green Space

#### The Challenge:
The continued urbanization of Phuket is making access to nature more difficult for families, children, youth and working adults, while stress in our lives is ever increasing.

#### Our Goal:
All Phuket residents and visitors have equal and adequate access to public green spaces and natural areas within 5 kms of where they stay.

#### Proposed Strategy:
Campaigns to promote the benefits of public parks and conduct more public events in public parks (e.g. festivals, competitions, music, etc.) that draw diverse sectors of Phuket society.

#### Indicators:
- Total number of public parks.
- Per capita amount of outdoor ‘green’ public & recreation space.
- Number and % of people who use public parks or visit natural areas in each community
- Amount of private land donated for public use
Why this issue important for Phuket’s Sustainability?

Phuket has a reputation as a great place to live and work and a great place to holiday. This image is under threat from inordinate number of road accidents and fatalities among both Thai residents and foreign tourists.

What is the Trend?

Road accidents are the biggest cause of death to foreign tourists in Thailand. On top of this, Phuket has one of the highest road accident rates in the country with motorbike accidents being the most common cause of death on the island. Over the past ten years, there has been an average of 180 people injured as a result of road accidents per year, with 47% being left disabled. In Thailand, more than 16,000 people were killed and nearly a million people were injured in road accidents in 2011. 116 people died in road accidents in Phuket in 2011. Phuket’s accident casualties and injuries from traffic accidents cost the island more upon year, 1355 million baht in 2010 to 1,492 million baht in 2011. No statistic was available from the Department of Health for either year 2012 or 2013.

However, not all news is bad, as Phuket is one of the top three provinces in the country for having the most motorbike riders wearing helmets. It was reported that this has helped to reduce the number of deaths in traffic accidents in Phuket by 40%, when compared with [the number of deaths] just five years ago. This may be due to the 100% helmet law, that is yet to be effectively enforced.

Source of Data

Phuket Public Health Department
**Wellbeing Aspect 7**

**Availability & Access to Clean Water**

**Why this issue important for Phuket’s Sustainability?**

The information from Phuket Royal Irrigation Project indicated that residents in the north of the island still suffered from water shortage. Local communities in Srisoonthorn, Thepkrasattri and Mai Khao subdistricts currently rely on their own local water networks where supplies are from water wells, retention ponds, and old Tin mines. While in urban area especially urban community and tourist spots such as Kata, Karon, Rawai and KraTu beaches rely not only on pipelines provided by Waterworks Authority but also buy water from private companies.

**What is the Trend?**

Phuket is currently going through an intensive period of leisure property development, with many new hotels, apartments and houses under construction. A total of 5,080 additional hotel rooms are expected to enter Phuket by 2015. In July 2005, Phuket was voted one of the World’s Top 5 retirement destinations by the acclaimed Fortune Magazine. As of the 2010 census, there are over 520,000 people residing on the island, including some 115,881 foreigners, or 21.1% of the population. There are also an estimated 64,000 migrant workers from Burma, Laos and Cambodia. The numbers of tourists have increased from around 3 million visitors in 2003 to close to 13 million in 2013. Water shortage in Phuket is more severe in high season as water demand increases from tourism industry.

**Source of Data**

Phuket Waterworks Authority, Phuket City Municipality; Department of Waterworks, Royal Irrigation Department: Office of Water Management and Hydrology
Why this issue important for Phuket’s Sustainability?

Dengue is a mosquito-borne infection, which in recent years has become a major international public health concern. It is found in tropical and sub-tropical regions around the world, and predominately in urban and sub-urban areas. Dengue hemorrhagic fever (DHF), a potentially lethal complication, was first recognized during the 1950s and is today a leading cause of childhood mortality in several Asian countries. The global prevalence of dengue has grown dramatically in recent decades. The disease is now endemic in more than 100 countries. A rapid rise in urban population is bringing ever greater numbers of people into contact with this vector, especially in areas that are favorable for mosquito breeding e.g., where household water storage is common and where solid waste disposal services are inadequate.

The Aedes aegypti mosquito breeds primarily in man-made containers like earthenware jars, metal drums and concrete cisterns used for domestic water storage, as well as discarded plastic food containers, used automobile tyres and other items that collect rainwater. Proper solid waste disposal and improved water storage practices, including covering containers to prevent access by egg laying female mosquitoes are among methods which are encouraged through community-based programmes. Given that Dengue infects all people, Thai and foreigners, and Phuket is at the forefront of the problem in Thailand, there is a number of reasons that it has become a sustainability issue.

What is the Trend?

In 2012, Thailand experienced its worst epidemic of dengue fever in 20 years with 126 deaths and 135,344 people infected with the virus, according to SoponMekthon, director-general of Department of Disease. The situation of Dengue hemorrhagic fever and other mosquito-borne viral hemorrhagic fever in Phuket Island is high Phuket is now listed as the highest-ranking province in Thailand for Dengue Fever outbreaks with 1,957 patients.

Source of Data

Phuket Provincial Public Health Office