

EU Partner

GrAT Center for
Appropriate Technology

Facts and Figures

- EC contribution:
€ 1 687 million (80%
of the total)
- Duration: November
2009 - November
2013
- Extensive Energy
Audits carried out for
26 Frontier Group
resorts.
- 150 tourism SMEs
have taken part in
the ZCR project so
far.
- The first ZCR
handbook "Reduce" -
a practical guide to
make resorts more
energy efficient was
published and
disseminated.



EUROPEAN
COMMISSION

Energy generation and supply

Building Energy Autonomous Resorts Using Appropriate Technology Solutions in Tourism Destinations of the Philippines

Zero Carbon Resorts (ZCR) Project

"Participating Small Medium Enterprises (SME) will discover there is a great potential to increase energy efficiency and reduce costs by implementing simple measures and using renewable energy technologies."

Dr. Robert Wimmer, Managing Director
of GrAT Center for Appropriate
Technology



Context

Palawan, which is located in the western part of the Philippines, is one of the world's top tourism destinations. The fast growing tourism industry contributes to the local economy through revenue generation, employment, and regional development. At the same time, it is also responsible for a large portion of energy consumption, waste generation and disposal. The absence of a centralised energy supply grid system in Palawan forces SMEs to resort to diesel generators as a source of electricity, instead of making use of renewable energy, especially solar energy. No criteria exists which could be used to evaluate tourism enterprises.

Objectives

- Increase small medium enterprises' energy efficiency by implementing appropriate behavioral and technical measures.
- Decrease the dependence on fossil fuels and switch from fossil fuel to renewable energy resources.
- Stimulate local economy by producing and using regionally available renewable materials and low-carbon technologies for buildings and energy services.

Impact

- Participating SME's energy efficiency performance improve.
- Schools and universities adopt the ZCR practices.
- The Department of Tourism signed an Agreement to improve accreditation standards, including energy efficiency requirements for resorts.

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One of the FG members, Daluyon Beach & Mountain Resort, is located on Palawan's Sabang Beach, close to the famous Underground River National Park. Mr. Butch Tan, the owner and CEO of the resort, was already keen on utilizing renewable energy. Yet, he recognized further improvement was possible after the detailed energy audit conducted by the ZCR team. Following the suggestions of the project, he first installed meters to monitor water and electricity consumption. Louver ventilations were installed on the roof to allow cross-ventilation and to prevent proliferation of mold, fungi, and bacteria caused by trapped air in the ceiling. Natural ventilation improved indoor air quality significantly. Since Mr. Tan is willing to invest to improve energy efficiency and save costs in the long term, waterless urinals and daylight solar tubes were mounted. For his conference pavilion, he opted for a simple solution recommended by the ZCR team, namely to place insulation on the roof of the tent and utilise a water sprinkler to cool down the intense radiant heat. This simple and energy-efficient measure was favoured over the idea of closing the entire structure and introducing four air-conditioner units which would have cost PhP 680,000 and would have consumed 12.0 Tons of Refrigeration (TR) every time the tent was used. Through these changes, the resort is already saving energy costs. Most of Mr. Tan's investments are expected to become profitable in less than a year.



Mr. Butch Tan pointing at the daylight solar tube installed at his office.