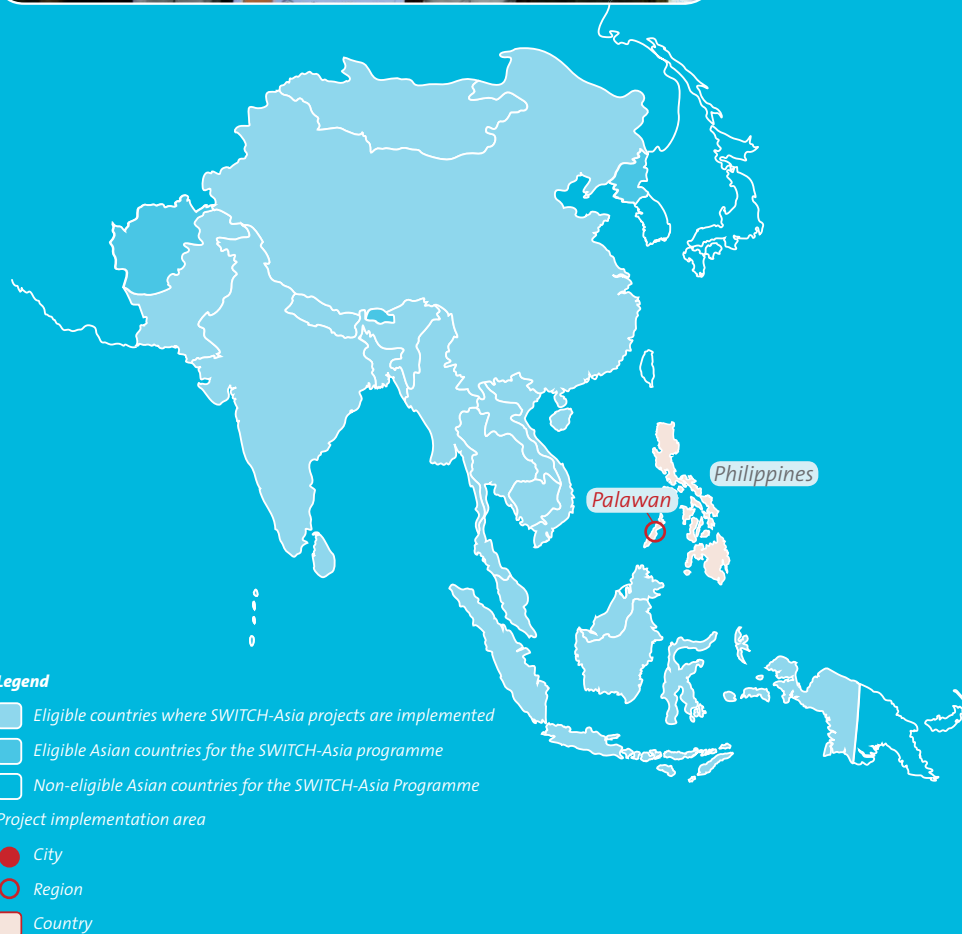




# PROJECT PROGRESS SHEET

## ZERO CARBON RESORTS

### – BUILDING ENERGY AUTONOMOUS RESORTS CREATING APPROPRIATE TECHNOLOGY SOLUTIONS



The boundaries shown on this map do not imply on the part of the European Union any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.



## BRIEF PROJECT DESCRIPTION

The SWITCH-Asia project *Zero Carbon Resorts* seeks to enable tourism SMEs, such as hotels and resorts, to provide their energy services in an energy efficient, cost effective, and environmentally sound way. By providing the SMEs in Palawan and other parts of the Philippines with the access to energy-saving measures and new green technologies, the dependence on fossil fuels will be lessened.

The project applies the 3R strategy: Reduce-Replace-Redesign. The first step is to reduce the energy consumption in hotels and resorts, and the second step is to replace inefficient appliances with better, greener technologies. In the Redesign stage, a showcase “Zero Carbon Cottage” will be built in Palawan, which will operate using solar- and biomass-based energy generation systems. The year 2010 concentrated on the Reduce strategy.

The selected hotels and resorts in Palawan were audited in terms of their energy supply and consumption status, demands, and condition of building envelope, as well as guest behaviour. The audit team proposed a number of appropriate solutions to improve the energy efficiency, and the solutions are being implemented by the hotels and resorts. In parallel, engineers, building and facility managers, environmental consultants, as well as hotel/resort staff members had been trained to increase their capacities and knowledge through a series of training packages.

The main communication platform of the project has been established in the form of an interactive website, [www.ZeroCarbonResorts.eu](http://www.ZeroCarbonResorts.eu). At the end of Year 1, the ZCR consortium held a stakeholder conference in Palawan for multi-stakeholder approach.

## PROJECT PARTNERS

Center for Appropriate Technology (GrAT), Philippine Green Building Council (PhilGBC), Palawan Council for Sustainable Development (PCSD), Plataforma Solar de Almería Centro de Investigaciones Energética, Medioambientales y Tecnológicas (PSA CIEMAT), Asia Society for Social Improvement and Sustainable Transformation (ASSIST)

## PROJECT WEBSITE

[www.ZeroCarbonResorts.eu](http://www.ZeroCarbonResorts.eu)

## PROJECT ABBREVIATION

ZCR - BEARCATS

## PROJECT DURATION

November 2009 - November 2013

## TARGET GROUPS

- Tourism SMEs/ Local hotels: The final beneficiaries of the project are SMEs in the tourism sector, which include resorts, any form of accommodations, related private establishments, intermediaries such as local resort associations. These SMEs also function as the main intermediary between the green technology providers and energy service users (tourists and staff).
- Local architects, planners, engineers, practitioners, and technical consultants: when it comes to capacity building, these stakeholders will be the intermediary beneficiaries.
- Consumers: The volume of energy consumption strongly depends on users' behaviour. Tourists and guests of the hotels and resorts have been engaged as a target group in the consumption component of the project, in the form of surveys (over 300 guests) and campaigns for behaviour change. The ZCR project tackles user behaviour change with a number of measures, such as installation of energy saving devices, guest behaviour change instruction, etc.
- Regional government: Palawan has a unique strategic environmental plan (SEP). The SEP seeks to achieve balance between development objectives and environmental protection. Throughout the ZCR project the regional authority is revising the SEP to be more effective in its implementation.

## PROJECT MANAGER ORGANIZATION ADDRESS E-MAIL TELEPHONE FAX

Dr. Robert Wimmer  
GrAT Center for Appropriate Technology  
Wiedner Hauptstrasse 8-10, A-1040 Vienna / Austria  
[ZCR@grat.at](mailto:ZCR@grat.at)  
+43 (0)1 58801 49523  
+43 (0)1 58801 49533

## OUTPUTS UNTIL DECEMBER 2010 TO BE SHARED WITH WIDER AUDIENCE



The main communication platform of the project has been established at [www.ZeroCarbonResorts.eu](http://www.ZeroCarbonResorts.eu). The Zero Carbon Resorts virtual platform contains two components: the Public and Member Site.

The public site serves as a platform for information and dissemination. This ensures the users are privy to details such as the project background, project approach, the funder, project implementer and participant details, and most importantly, download of energy audit templates and outcomes of project.

The member site is built on the ZCR database where the participating SMEs can register themselves and enter their consumption of resources on a regular basis so that they can monitor and

compare their consumption to that of other facilities. In addition to this the users can discuss on the project topics through the forum. Hotels, resorts, and restaurants who want to improve their energy service quality and to reduce operation costs can register through the website and obtain useful information and inquire experts' support. Once registered, from February 2011, SMEs can download a number of project outcomes such as the 1st volume of ZCR handbook which contains a great deal of measurements of energy saving, instructions for better energy services, and signage for guest behavior change. Also, the 1st instructional video material for self energy audit and energy conservation measures can be downloaded.

## RESULTS ACHIEVED TILL JANUARY 2011

The ZCR project engaged 26 hotels and resorts from Palawan, the so-called Frontier Group (FG), as selected demonstration SMEs. Managers and technicians from local hotels and resorts participated in the three briefing sessions in Coron, Puerto Princesa, and El Nido, and applied for FG. The selected members undertook the energy audit and received audit reports, infra-red analysis, and instructions for improvement as a result.

Tourists who visited the FG hotels and resorts were surveyed for their energy consumption behaviour. A number of specific perception and behaviour patterns were distinguished through

a number of structured questions, and the result was taken into consideration in elaborating instruction for behaviour change and staff training of the hotels and resorts.

Local engineers, architects, environmental consultants were trained with regard to basic theories of energy supply and demand, renewable energy sources and technologies, and building solutions for natural ventilation and lighting, etc.

Throughout the above-mentioned actions, a number of sustainability gains were achieved: Environmentally, the overall energy consump-

tion in the FG has been decreased and/or the quality of energy service has been improved by applying the proposed solutions, such as change of roof colour, proper sealing of air-conditioned rooms, or re-orientation of renewable energy generation. This also leads to the saving of energy costs and increased satisfaction of guests in economic terms. Saved energy costs are re-directed to investment for renewable energy facilities such as hot water generators, or for devices with higher energy efficiency. Socially, the knowledge and capacity of local engineers and environmental experts has been built up. This results in the independence of local population for future sustainability.

In the course of implementing the 3R strategy, step-wise SCP actions are conducted with the help of financial mechanism; the SMEs invest in purchasing green products and technologies with the savings gained from the reduce phase. Through hotels and resorts, energy saving in-

struction is disseminated to the guests in order to encourage sustainable consumption. Since the guests are from all over the world, impact of the behaviour change campaign can be significant.

The ZCR project adopts the Appropriate Technology principle in placing the SCP policy in practice. Instead of applying expensive and foreign high-technologies (e.g. photovoltaic panels), regionally available, inexpensive resources and materials will be utilised, which can vitalise the local economy.

First changes for the Clearing System in Palawan for new projects are being adapted. A strong link has been built with the central government, especially Department of Tourism.

## LESSONS LEARNT SO FAR

The low “step-in threshold” built into the 3R methodology allows reaching a majority of the target SMEs in Palawan. Most of SMEs in the tourism industry in the Philippines are providing a similar set of energy-intensive services to their guests. Utilising renewable energy sources is still seen as a technological solution out of reach. To initiate a change towards higher efficiency and to switch to renewable re-sources it is crucial to overcome the perception barrier and to provide a methodology with immediate benefits from the “low hanging” fruits and increase efficiency with low cost measures (“Reduce”), then in a second step introducing technological innovation and moving to higher levels of efficiency (“Replace”) and finally towards best-practise solutions that can reach carbon-neutral and self-sufficient energy supply under Philippine climate conditions



(“Redesign”). Of course this cannot be achieved all at once and not in all companies at the same time. Showcasing step by step what is possible and feasible and attracting more and more followers through this steps by displaying achievements and procedures to follow is therefore the core strategy.

However, the 3R strategy is not applicable to all tourism SMEs as they have already reached different level of innovation. Some are aware of the necessity of green technology implementation, and already willing to purchase new facilities in order to further improve their energy performance while some would like to take the steps along the reduce-replace-redesign and start with simple energy-saving measures. Not to hinder the hotel owners and managers who want to directly implement advanced solutions



with a bigger scale investment, the border between Reduce and Replace was blurred to provide the required information to the target groups.

To analyse the impact of the ZCR actions, feedback from SMEs is essential. However, SMEs are not familiar with reporting their monthly energy consumption to an external body, especially because the data are related to their actual financial status. In order to address this problem, the secured individual data input system has been established on the web platform.

Palawan is the largest prefecture in the Philippines, and tourism areas are scattered along the long island. During high seasons, hoteliers are fully occupied with own business and hardly allow time for attending events. Therefore, it con-

sumes quite some time to move from one place to another. To reach a large number of SMEs, events were repeated in different places.

It turned out that SMEs are the most crucial stakeholders, as they are the main bodies who apply energy saving measures, replace old and inefficient devices with new and better quality ones, and invest in building new resorts and hotels. They are also the intermediary agent to educate inter/national tourists to change their behavior.

Some of local stakeholders – trainees and SMEs – are highly enthusiastic about the ZCR project, welcoming its timely launch in Palawan and the appropriate technology approach. Their active involvement encourages other stakeholders and participation in meetings and events.

## OUTREACH AND SYNERGIES

GrAT and Assist successfully implemented an action on sustainable production and capacity building under Asia Pro Eco in the Philippines. Throughout the site audits conducted during this Asia Pro Eco project, it was recognised that there was a great potential of saving energy and reducing resource consumption in the SMEs in the Philippines.

ZCR project focuses on Palawan island as a first implementation stage, but the scope should expand to the whole country, and further to the neighbouring countries. As the neighbouring countries such as Thailand, Malaysia, and Indonesia have similar climate conditions to the Philippines, and because the tourism industry is ever growing in these south east Asian countries, the ZCR schemes can be replicated with necessary adaptations.

Through the SWITCH Network Facility event, a similar project entitled “*Greening Sri Lankan Hotels*” was encountered. This project began one year earlier than ZCR project and conducts comparable activities with the ZCR project. Coopera-

tion and connections can be expected between the two actions.

ZCR project is quite well known to the local population and authorities in Palawan, especially in the tourism areas by means of media promotion as well as visibility actions. The project team has established a good connection with local public bodies.

The Strategic Environmental Plan (SEP) is a sustainable development framework operating in Palawan. It is the aim of SEP to improve the quality of life of the people in Palawan both for the present and future generations through the use of complementary activities of development and conservation that protects the environment and life support systems. Based on the lessons learnt from the ZCR project, Palawan Council for Sustainable Development PCSD is going to optimize the SEP Clearance System with the help of ZCR outcomes to ensure that programs and projects are implemented in appropriate designated zones and pursuing sustainable development objectives.



## ADDITIONAL HIGHLIGHTS OF THE PROJECT

For all events of ZCR project – briefing sessions, trainings, and the conference – its target participant numbers were overreached. Especially at the briefing sessions, about 150 participants attended, while initial target was 50 SMEs.

Rainwater harvesting was included in the scope of project since the scarcity of water resource was identified as one of the key problems that the local hotels and resorts are encountering. And water production consumes a lot of energy for pumping, desalinations, etc. Thus, rainwater harvesting was suggested as one of practical solutions. Some of the FG members (e.g. Daluyon Hotel, Puerto Pension) have adopted the suggestion and are now utilising rainwater as additional water resource for many uses in the hotel. In order to analyse the quality of the filtered rainwater, a laboratory test was carried out.

High interest for Replace and Redesign was recognised by several companies, some of which started implementation already ahead schedule.



*Frontier Group member resort after energy audit and suggestion of improvement solutions*



*Energy audit on site*



*Training of engineers, architects, environmental consultants*