



ZCR Success Story IV:

Sangat Island Dive Resort saves 50%
in Fuel Consumption and other resources.



Project funded by:



European Union's SWITCH-Asia Program

Project implemented by:

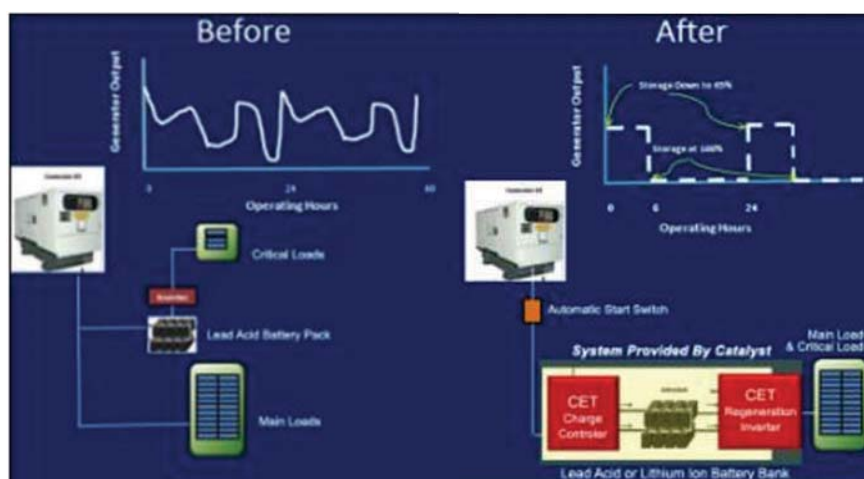


GrAT, PhilGBC, PCSD, CIEMAT-PSA, ASSIST



Diesel fuel being transported from town

Due to expensive Diesel fuel landed cost, an energy storage system is being installed in the resort to cut Diesel Generator (DG) set fuel consumption by 50%. The energy storage system is a set of equipment that stores (in a series of lead acid batteries) the electricity produced by the DG set that is not being utilized by the resort load. The DG set now runs at full capacity and since all the energy produced is utilized, it is more efficient than running it at lower load. The DG set automatically discontinues operation once the storage system is already full. The storage system will supply energy to the resort until the capacity is at 65%, this will be the only time that the DG set will operate again. The DG set's operation was cut in half thus saving 50% in fuel consumption. Hence, this will lower the carbon footprint of the resort bigtime!



Before and after system performance of the energy supply



Battery Bank



Left Inverter System; Right Solar Charger

The resort installed a 240 KVA inverter and a battery bank capable of powering the whole resort. The batteries are charged from combined sources, the DG set and solar panels. 30 X 305 W solar panels were installed above the foot bridge producing almost 10KW at 28 AMPS when the sun is at its peak. The inverter was supplied by a company called "Catalyst" and the panels by "Sun Power". The solar panels above the foot bridge not only serve as power source but also serve as shade for the foot bridge and use to collect rain water that runs off the panels into a gutter which is connected to a water tank.



Before (left and right) No shading at foot bridge

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After (left and right) Solar panels above the foot bridge

Desalination Plant being set-up



The water supply for the resort originally came from a deep well but since there is already saltwater intrusion in the well, a desalination system was set-up. Currently, the desalination plant is working well and can also be powered by the inverter/batteries or from the DG set. It produces 2 gallons of fresh water per minute. The system was designed and installed by "Solerex". Desalination combined with the rain water collection, a huge amount of fresh water is enough for the resort's operation. And only use the well for back-up supply which means that the serious environmental issue that is irreversible in nature was eliminated. The resort is also looking at changing to compost toilets and finally would no longer need to use ground water.

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Bulk Buying

Bulk buying is being practice when buying Potable water from the town to save on logistics and related resources.



Potable water for the resort

Energy efficient refrigerators and freezers



Before: Old freezers



After: New and efficient freezers and refrigerators

An old refrigerator and three freezers have been replaced with those with higher energy efficiency.

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Decommissioned the old kerosene powered refrigerator

This old kerosene powered refrigerator will be converted to a solar powered refrigerator.

Energy efficient refrigerators and freezers



Efficient perimeter and garden lamps



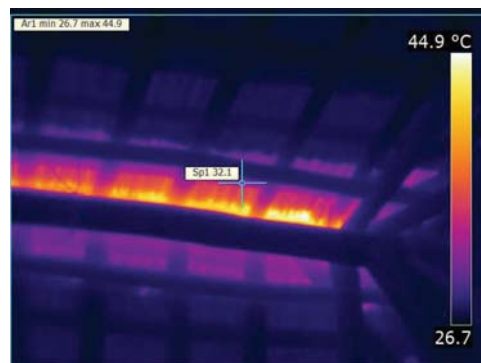
Perimeter and garden lamps that consumed a lot of energy were replaced with eco-par 15 watts (10 pcs). Two pieces of halogen lamps of 500 watts were also replaced by 2 pieces of eco-par of 15watts.

Best Practice Cottage for Ventilation and insulation



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Low Heat gain inside the cottage

The cottages are expertly designed that allows flow of air inside the cottages and through the ceiling and roof. Roof is made of cogon and Bamboo. With sufficient thickness of cogon, it moderates surface temperature therefore lower heat gain.



The proper combination of ventilation and thickness of the insulation significantly contribute to a lower heat gain and more comfortable indoor condition even with no AC!