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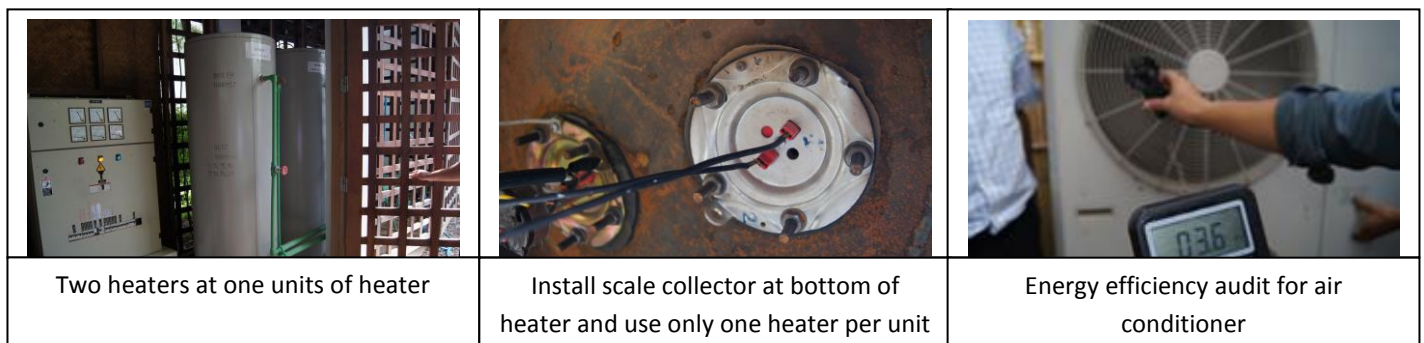
RECP Experiences in Cleaner Production at De La Paiz Hotel Lao PDR

The efficient and environmentally sound use of materials, energy and water - coupled with the minimization of waste and emissions - makes good business sense. Resource Efficient and Cleaner Production (RECP) is a way to achieve this in a holistic and systematic manner. RECP covers the application of preventive management strategies that increase the productive use of natural resources, minimize generation of waste and emissions, and foster safe and responsible production. Benefits are eminent in many enterprises, regardless of sector, location or size, as demonstrated by the experiences of Cleaner Production implementation at De La Paiz Hotel, Lao PDR.

Achievements at a Glance

RECP implementation in De La Paiz hotel resulted in significant savings in daily operating cost of utilities. Water and energy consumption and its conservation practices in addition to direct savings will also enhance hotel image/reputation among guest and other stakeholders particularly those who are concerned global as well as local water/energy security, reducing global energy consumption and the effect direct to guests. Improvement in energy efficiency measures can decrease dependency on energy produced through as demonstrated in table below.

S.NO	Description	No./ Value	% share
1.	Total No. of options identified	18	
2.	No. of RECP options selected for feasibility analysis	6	33%
3.	No. of RECP solutions implemented	11	67%
4.	Energy savings (US\$/year)	61,000	50%
5.	Total GHG emissions reduction achieved (Ton CO₂ eq/year)	296	50%
6.	Direct savings reported	68,000	
7.	Total investments in US\$	21,000	Pay back<3 months



Overview

Hotel de la Paix (DLP) Luang Prabang is a century-old French fort and World Heritage wonder, colonial moment preserved in amber, and a showcase of contemporary design. In the heart of the former royal capital of Laos, having 23 spacious suites some with large private pools. The total area of hotel is around 10,000 square meters, with the 4 old and 4 new building having total number of 23 guest rooms, restaurant, library, SPA facilities & swimming pool. For captive power requirement in emergency hotel has a generator with capacity of 750kVA.

It was reported that De La Paiz had:

- Higher Resource consumption viz. Energy, water and Chemicals
- Operating costs of facility are high
- Waste Generation viz. solid, liquid and gaseous is high
- Low Occupancy of property and
- Higher Operation & Maintenance costs

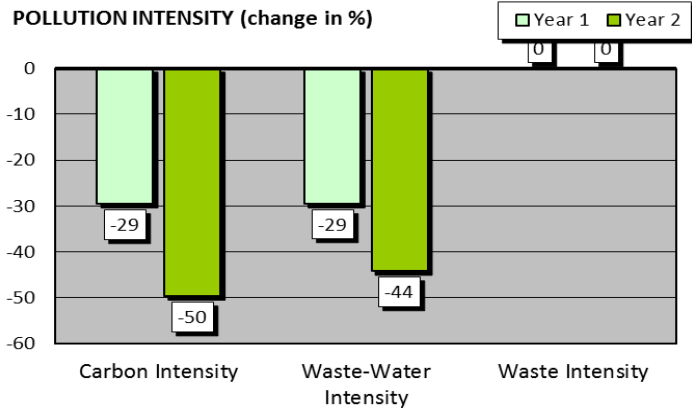
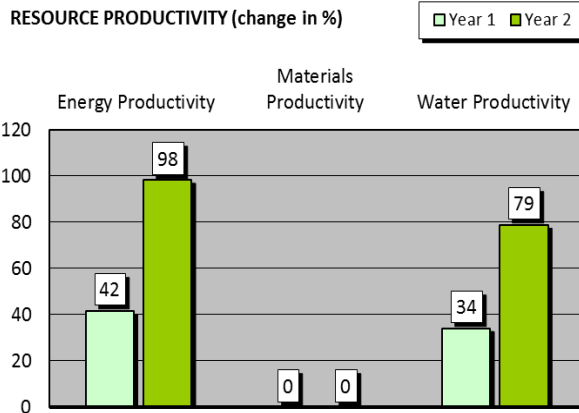
Benefits

Table below illustrates the pattern of resource consumption (electrical energy and water after implementation of Low cost RECP measures.

Benefits achieved from implemented RECP measures

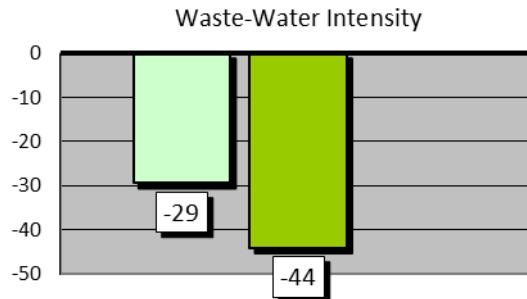
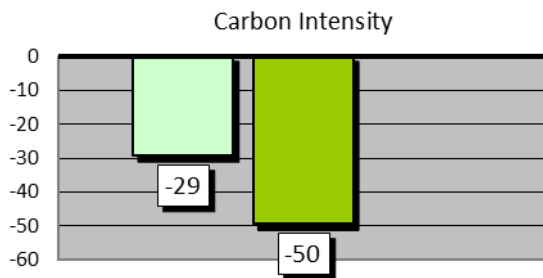
S.NO	RESOURCE	Baseline in 2011	2012		2013		2014	
				% Red.		% Red.		% Red.
1.	SEC (kWhr)							
	• Room/night	248	171		116	53	125	50
	• Guest/night	131	94		79	40	63	52
2.	Water cons. (KL)							
	• Room/night	No Record*	6.8	NA	4.8	30	3.4	50
	• Guest/night		3.6	NA	2.9	20	1.7	52
3	Wastewater (KL)							
	• Room/night	No Record*	4.8	NA	2.6	46	2.2	54
	• Guest/night		2.5	NA	1.4	44	1.1	56
4.	GHG Red. (Kg)							
	• Room/night	149	102	31	70	53	75	50
	• Guest/night	79	56	29	47	41	38	52

RECP Profile



Legend: Year 1 (light green), Year 2 (dark green) (change in %)

Legend: Year 1 (light green), Year 2 (dark green) (change in %)



Resource and Cleaner Production (RECP)

Resource Efficient and Cleaner Production (RECP) entails the continuous application of preventive environmental strategies to processes, products and services to increase efficiency and reduce risks to humans and the environment.

RECP addresses three sustainability dimensions individually and synergistically:

- *Production efficiency*

> Through improved productive use of natural resources by enterprises

- *Environmental management*

> Through minimization of the impact on nature by enterprises

- *Human development*

> Through reduction of risks to people and communities from enterprises and supporting their development



Success Areas

The results were achieved through the implementation of the following measures:

Till the compilation of this report, the company has implemented 13 options with low/no financial investment needed below. After implementing the listed low cost options, the company reported energy and water saving by 50%.

1. Manual control of water heaters depending on occupancy.
2. Using 1 water heater of one unit for 6 rooms from existing 2heater per unit by Installing scale collector at opposite site of the heating coil to avoid scaling at heating coil
3. Adjustment of heaters temperature below 60° C
4. Regular check for proper insulation of hot water pipe and thermostat.
5. Proper preventive maintenance of all Air con units for refrigerant gas pressure and quantity
6. Regular cleaning of filters, cooling pipes, condensers
7. Regular cleaning of heater/hot water boilers to remove scales
8. Prevention of leakage in pipe from compressor to split unit in rooms.
9. Regular check of refrigerators/de-freezer door rubber lining to reduce energy losses and replace
10. Switch off all electrical and electronic gadgets in kitchen and SPA in nighttime to reduce static power loss.
11. Lighting of pathways, pools etc., based on lux/lumen and on and off timings are strictly watched

The impact of RECP implementation on operational costs was reported to be very significant and based on annual average occupancy of 55% and resource costing as per year 2014, total financial investment and benefits of RECP is presented:

Principle options implemented	Benefit			
	Economic		Resource use	Pollution generated
	Investment [USD]	Cost Saving [USD/yr]	Reductions in energy use, water use and/or materials use (per annum)	Reductions in waste water, air emissions and/or waste generation (per annum)
Option1: Manual control of water heaters depending on occupancy.	100	1,000	Reduction of electricity for heater	
Option2: Using 1 water heater in each unit for 6 rooms from existing 2heater of each units by installing scale collector at opposite site of the heating coil to avoid scaling at heating coil	15,000	46,000	Reduction of electricity for heater 50% by using only one heater per unit	Electricity reduction of every option is Contributed to reduce GHG 50% per room
Option3: Adjustment of heaters temperature below 60° C	50	100	Reduction of electricity for air conditioner	
Option4: Regular check for proper insulation of hot water pipe and thermostat.	1,000	2,000	Reduction of electricity for heater	
Option5: Proper preventive maintenance of all Air con units for refrigerant gas pressure and quantity	1,000	2,000	Reduction of electricity for air conditioner	
Option6: Regular cleaning of filters, cooling pipes, condensers	1,000	2,000	Reduction of electricity for air conditioner	
Option7: Regular cleaning of heater/hot water boilers to remove scales	2,000	4,000	Reduction of electricity for heater 20%	

Option8: Prevention of leakage in pipe from compressor to split unit in rooms.	200	1,000		
Option9: Regular check of refrigerators/de-freezer door rubber lining to reduce energy losses and replace	200	1,000		
Option10: Switch off all electrical and electronic gadgets in kitchen and SPA in nighttime to reduce static power loss.	200	500		
Option11: Lighting of pathways, pools etc., based on lux/lumen and on and off timings are strictly watched	1,000	2,000		
Total	21,750	61,000		

Testimony Box

Cleaner Production Centre Lao PDR (CPC-L)

Cleaner Production Centre Lao PDR (CPC-L) was established on 7th October 2010 hosted by the department of industry and handicraft, ministry of Industry and Commerce. CPC-L has a steering committee comprised of representative from related government agency, Lao National Chamber of Commerce and Industry, National University of Laos and the representative of UNIDO. The Centre, with specialization in resource efficiency, works with number of educated and highly specialized national and international experts on different projects in Laos.

The CPC-L offers a broad service portfolio, including, amongst others RECP trainings, plant assessments and audit services for companies, water and energy efficiency audits using the RECP methodology. The Cleaner Production Center Lao PDR has worked for over 32 companies (SMEs) from a variety of 5 industrial sectors: Manufacturing, handicraft and hotel), has trained more than 1,000 people on RECP methodology and has conducted Green industry Projects supported by the Japanese government in early 2015 for RECP assessment and drafting of green industry policy. The CPC-L works with the support of the Ministry of Industry and Commerce and has good cooperation with different organisations, academia, consulting companies etc.

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ABOUT RECP EXPERIENCES

Through the joint Resource Efficient and Cleaner Production (RECP) Programme, the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP) cooperate to improve the resource productivity and environmental performance of businesses and other organizations in developing and transition countries. The Programme is implemented in partnership with the Global Network for Resource Efficient and Cleaner Production (RECPnet). This series of enterprise success stories documents the resource productivity, environmental and other benefits achieved by enterprises in developing and transition countries through the implementation of RECP methods and practices.

These successes were achieved with the assistance of the National Cleaner Production Centres, which are part of RECPnet established with support of the UNIDO and UNEP. The success stories employ the indicator set described in *Enterprise Level Indicators for Resource Productivity and Pollution Intensity*, UNIDO/UNEP, 2010. The primer with accompanying calculator tool and further case studies are available at www.recpnet.org, as well as on www.unido.org/cp and www.unep.fr/scp/cp.