



National Productivity and Competitiveness Council

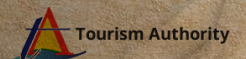
OPERATION
CO SHARE

COVID-19 OSH & RESOURCE EFFICIENCY



AN INSIGHT

Resource efficiency and cleaner production projects in 21 local companies that support the development of a green, sustainable and low-carbon economy.



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#merisienprediktif



Ashit Gungah
Executive Director
NPCC

FOREWORD

Given the unprecedented challenges faced by the tourism sector amid the COVID-19 pandemic and the compelling need to support the sector to “build back better”, the National Productivity and Competitiveness Council (NPCC) partnered with the Ministry of Tourism, the Tourism Authority, the International Labour Organisation (ILO) and the Partnership for Action on Green Economy (PAGE) to implement Operation COSHARE (Covid-19 Occupational Safety and Health and Resource Efficiency) from September 2021 to June 2022.

Operation COSHARE was implemented in two phases. The first phase dealt with implementing Covid-19 Occupational Health and Safety protocols across the tourism value chain while the second part focused on the implementation of resource efficiency and cleaner production projects in 21 local enterprises. The ultimate objective was to support the development of a green, sustainable and low-carbon economy and at the same time improve the productivity and competitiveness of enterprises.

Training contents were customised and developed exclusively for Operation COSHARE with support from the United Nations Environment Programme (UNEP), PAGE and the ILO.

NPCC trainers were instrumental in implementing projects related to waste reduction (food, water, electricity, gas, plastic) as well as improved service delivery and better workplace cooperation.

This publication showcases the positive outcomes in some selected enterprises. We wholeheartedly thank them for trusting us and for their relentless commitment. We hope that their achievements will motivate and inspire other organisations to join the productivity band-wagon.

I seize this opportunity to express my gratitude to all our collaborators including the Ministry of Tourism, the Tourism Authority, ILO, PAGE and UNEP.

I wish to thank especially Mr. Jens Dyring Christensen, Senior Specialist from the ILO for his guidance throughout the project.

I also extend my appreciation to the SCORE (Sustaining Competitive and Responsible Enterprises) expert, Mr. Ganesh Kalyanasundaram, for his unflinching support and expertise.

Last, but not the least, my thanks also go to all NPCC staff for their invaluable contribution and dedication to make Operation COSHARE successful.



Jens Dyring Christensen
Senior Specialist,
Sustainable Enterprises,
and SCORE focal person for
Eastern and Southern Africa,
ILO Decent Work Team,
Pretoria, South Africa

ACKNOWLEDGEMENT FROM ILO

As a small island developing state, Mauritius is increasingly facing the challenges posed by climate change. The country is constantly looking for innovative ways and partnerships with all stakeholders to address impending challenges.

The UN is an important partner in this process. Since 2014, the UN has implemented PAGE and supported Mauritius in its commitment to transform itself into an environmentally sustainable and inclusive economy and society.

Through resources made available by PAGE, the NPCC and the ILO introduced the SCORE programme in 2019. When Covid-19 struck in early 2020 in Mauritius, the economy was hard hit, particularly the tourism and hospitality sector which was severely impacted due to global travel restrictions.

The Government of Mauritius and the UN subsequently launched the PAGE Green Economic Recovery Programme with additional funding from PAGE donors. This led the NPCC and the ILO to develop Operation COSHARE, which was based on the SCORE programme. The objective of Operation COSHARE was two-fold. The first was to make local tourist enterprises Covid-19 safe and maintain the image of Mauritius as a safe destination. The second objective was to sensitise and implement resource efficiency and cleaner production projects. These two objectives ensured that economic recovery would not be at the expense of sustainable development.

These case studies focus essentially on the second objective and reflect the dedication and commitment by the participating enterprises and their employees. The projects encompass an array of resource efficiency exercises linked to food waste reduction as well as water and electricity usage among others.

A heartfelt appreciation and acknowledgement go to all the participating enterprises and employees. They demonstrated that even in hard times when firms are struggling to bounce back, it is indeed possible to identify ways of saving resources, produce less waste and run more efficient and sustainable enterprises.

Operation COSHARE has been a successful venture thanks to the contribution and support of NPCC staff, our different partners as well as our stakeholders both locally and abroad.

Acknowledgement is also extended to the UNEP for their valuable support. A special heartfelt thanks and acknowledgement goes to our SCORE expert, Mr. Ganesh Kalyanasundaram who went far beyond the call of duty to support the NPCC through his expertise.

ABBREVIATIONS AND ACRONYMS

%	Percentage
AC	Air Conditioning
BOH	Back of House
COSHARE	COVID-19 Occupational Health and Safety and Resource Efficiency
FIFO	First in First Out
G	Gram
ILO	International Labour Organisation
JIT	Just In Time
KG	Kilogram
KWh	Kilowatt per hour
L	Litre
LPG	Liquéfied Petroleum Gas
ML	Millilitre
NPCC	National Productivity and Competitiveness Council
PAGE	Partnership for Action on Green Economy
RECP	Resource Efficiency and Cleaner Production
SCORE	Sustaining Competitive and Responsible Enterprises
UN	United Nations
UNEP	UN Environment Programme
V	Volts
VIP	Very Important Person

ABOUT OPERATION COSHARE

The NPCC in partnership with the Ministry of Tourism, the Tourism Authority, the ILO and the PAGE, implemented Operation COSHARE from September 2021 to June 2022.

The objective of Operation COSHARE was to help position Mauritius as a safe and environmentally sustainable tourist destination, attracting foreign visitors to make the island their destination of choice. The project also incorporated a resource efficiency training and project implementation as part of the Green Economic Recovery of Mauritius to support the tourism industry to "build back better". The project also aimed at protecting employees as well as customers against the risks posed by the pandemic.

In the first phase, the project reached out to 1160 tourist accommodations, 860 Food & Beverages and entertainment organisations, 3310 tourist activity places and 1250 commercial pleasure crafts. Training on Covid-19 OSH was also delivered to 1200 taxi operators based at hotels and at the airport.

A total of 2023 companies were sensitised to put in place safety measures to prevent the spread of Covid-19. An additional batch of 1342 companies were trained on health and sanitary protocols.

In the second phase of Operation COSHARE, 21 companies implemented resource efficiency and cleaner production projects. The second phase targeted hotels, guest houses and other tourist accommodations as well as bars and restaurants. It helped in improving productivity in areas including materials, energy and water. The second phase also addressed operational excellence leading to enhanced business results and focused on improvements such as waste elimination including food waste and avoidance of single-use plastics. Through resource efficiency and cleaner production projects, Operation COSHARE also aimed at higher productivity in the participating enterprises.

The 21 enterprises which participated in phase 2 of the project are:

1. Alizée Resort Management Ltd
2. Pik Pik Studio Management Ltd
3. Happy Rajah Restaurant
4. Happy Rani Restaurant at Tamarin
5. Happy Rani Restaurant at Phoenix
6. Radisson Blue Resorts & Spa
7. Hilton Mauritius Resort & Spa
8. Villa Coco Chérie
9. Mella Villas Ltd (Angsana Balaclava)
10. Restaurant La Rivière Chez Boyo
11. Food for Thought Ltd
12. Thali Express Ltd
13. The Ravenala Attitude
14. Récif Attitude
15. Tropical Attitude
16. Coin-de Mire Attitude
17. Friday Attitude
18. Zilwa Attitude
19. Paradise Cove Boutique Hotel
20. Lagoon Attitude
21. Sunrise Attitude

IMPLEMENTATION OF COSHARE PHASE 2

The second phase of Operation COSHARE builds on the ILO SCORE programme which aims at improving productivity and working conditions in Small and Medium Enterprises (SMEs).

The typical SCORE Training by the ILO comprises five modules. They are: Workplace Cooperation, Quality Management, Clean Production, Human Resource Management and Occupational Safety and Health. Each module includes a two-day classroom training for managers and workers, followed by on-site consultations with industry experts that help to put the training into action at the workplace.

Operation COSHARE focused on four modules:

- Workplace Cooperation
- Product and Service excellence
- Productivity gains through RECP
- RECP - Taking Actions



IMPLEMENTATION OF COSHARE PHASE 2

Methodology

1. Training of trainers by ILO expert

A total of 16 NPCC staff were deployed to follow a training of trainers' programme dispensed by an ILO SCORE expert over a period of three days.

2. Training of enterprises

The NPCC staff then delivered training to 21 enterprises which was followed by a baseline assessment.

3. Enterprise visits

Regular visits were conducted by NPCC trainers to support the enterprises to implement identified resource efficiency projects.

As part of Operation COSHARE, phase 2, each enterprise was required to:

a. Set up an Enterprise Improvement Team (EIT)

The EIT, consisting of representatives of both workers and management, was tasked to identify and implement improvement projects under the guidance of the SCORE trainer.

b. Design an Enterprise Improvement Plan (EIP)

An EIP was designed and regularly updated to ensure that projects are effectively implemented and results sustained.

c. Collect data

Relevant data was collected and duly analysed to identify resource efficiency measures.

d. Implement measures

Resource efficiency projects were implemented and closely monitored by the EIT.



WASTE HEAT RECOVERY SYSTEM IN THE CHILLER UNIT SAVES GAS

Angsana Balaclava (Mella Villas Ltd)

Company Profile

Angsana Balaclava, located at Turtle Bay, Balaclava, is a five star all suite boutique resort. The hotel includes 54 suites, private and beach pools, spa, wellness centre, restaurants and conference facilities.

Project description

Angsana Balaclava was using LPG to provide hot water to its BOH area which comprises the kitchen, offices and conference rooms. Rising gas prices was a matter of concern for the management. Several options were investigated. It was found that the air-chiller used for air-conditioning in these areas was emitting heat which was being wasted. A system was put in place to recover this wasted heat to operate the boiler, thereby reducing LPG and electricity consumption. A preventive maintenance system was implemented to ensure the smooth functioning of the boiler.

Key Results

	Before	After	Improvements/reduction
Project's impact on boiler			
LPG Consumption	1500 kg monthly	0 kg	100% ↓
Cost of LPG	Rs 140,000	Rs 0	100% ↓
Project's impact on chiller			
Electricity Consumption-previously the temperature had to be set to 20°C to get an output of 22°C. Now the same output can be achieved with a set temperature of 21°C.	15 %	7%	53% ↓

LEAN APPROACHES ENABLE FASTER CHECK-IN OF GUESTS

Coin De Mire Hotel, Péreybère

Company Profile

Coin de Mire Hotel is a 3-star resort located at Bain Boeuf, Péreybère. It has 122 bedrooms, three restaurants, spa, mini club for kids and a swimming pool. The hotel faces the Gunner's Quoin island overlooking the northern shores of Mauritius.

Project description

The hotel decided to reduce its check-in time for guests following complaints about lengthy check-in procedures. The average check-in took about two hours as it involved verifications under Covid-19 protocols. Although 27% of guests did not require antigen tests, over 50% had to wait before accessing their rooms. It took even longer for them to have their luggage delivered.

The check-in process was then reviewed. Housekeeping and room availability planning were revisited to prepare rooms for all pre-booked guests.

Key Results

	Before	After	Improvement/Reduction
Overall time consumed for checking	2hrs	32 minutes	↓ 73%
Time consumed for check-in formalities	81%	19%	↓ 62%
Time consumed for handling of luggage	75%	25%	↓ 50%

DROP IN FOOD WASTE THANKS TO INNOVATIVE SOLUTIONS

Coin De Mire Hotel, Péreybère

Company Profile

Coin de Mire Hotel is a 3-star resort located at Bain Boeuf, Péreybère. It has 122 bedrooms, three restaurants, spa, mini club for kids and a swimming pool. The hotel faces the Gunner's Quoin island overlooking the northern shores of Mauritius.

Project description

Coin de Mire Hotel implemented another project that focused on reducing food waste. Data on food waste was compiled and the following measures were introduced:

- Avoiding buffets whenever possible
- Introducing 'make your own salad' concept
- Supervisory control at different serving points
- Reviewing recipes to reduce 'curry waste'
- Better portion control through combo dishes
- Raising awareness on food waste prevention among staff and guests
- Kitting of ingredients for the day's menu

Key Results

	Before	After	Improvement/Reduction
Overall wastes from plates for the period April to May 2022 (kg)	263.6	197.95	↓ 25%

Before	After
	No buffet during lunch hours 
	Size of service spoons reduced 
Varied menu and inability to predict number of guests at the restaurant	Ingredients made available for guests to prepare their own salads
	Kitting ingredients 

ATTENTION TO SIMPLE DETAILS SAVES WATER AND DETERGENTS IN LAUNDRY

Coin De Mire Hotel, Péreybère

Project description

Water and detergents usually represent significant costs for the laundry department. It was observed that washing machines were not being operated at full-load. Besides, the same amount of detergent was being used no matter the machines were fully-loaded or half-loaded. A new standard operating procedure was introduced to use both water and detergents more efficiently.

Key Results

	Before	After	Improvement/Reduction
Amount of water consumed per day (L)	10	7	↓ 30%
Amount of detergent consumed per day (ml)	1000	934	↓ 6.7%
Percentage of fully loaded cycles	50%	77%	↑ 27%

Before	After
	
Half loaded washing machine	Fully loaded washing machine with adjusted water and detergent levels
	

GREEN HOUSEKEEPING PRACTICES LEAD TO LOW CHEMICAL USAGE

Friday Attitude, Trou d'Eau Douce

Company Profile

Friday Attitude is a coastal 3-star property with 50 luxury rooms and 15 rooms specially designed for families. Facilities include spa and fitness centre, restaurant, bar and swimming pool.

Project description

The housekeeping department decided to reduce the use of chemicals for cleaning purposes. An organic solution derived from orange peels and vinegar was introduced while the ratio of water to detergent consumption was also reviewed.

Key Results

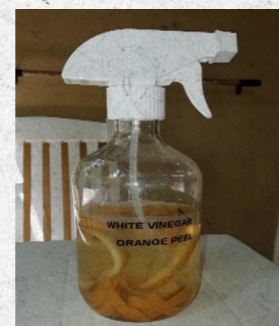
	Before	After	Improvements/reduction
Consumption of detergents per month (L)	20	7.5	62.5% ↓
Chemicals distilled in water for cleaning (%)	40%	30%	10% ↓

Before



Filling up chemical products

After



Homemade product made from white vinegar and orange peels



Awareness session on benefits of organic detergents

MULTIPLE STRATEGIES TO REDUCE FOOD WASTE

Friday Attitude, Trou d'Eau Douce

Project description

Friday Attitude envisaged a project to bring down food waste in the kitchen. Data was collected to identify areas of improvement. The following measures were implemented:

- Shifting from mass to live cooking
- Making soup upon request
- Meat carving
- Practicing the FIFO method in the dry store

Key Results

	Before	After	Improvements/reduction
Amount of items spoiled in storage before productive use (mostly fresh bought-outs) (KG)	9.24	0	100% ↓
Amount of cooked soup (L)	571	128	77.6% ↓
Amount of cooked food (salads, puffs pastries, beef, milk products, baked items, etc.) (KG)	12	5.74	52% ↓
Amount of chilled refrigerated items (pork, frozen salads, etc.) (KG)	4.2	.7	32.5% ↓

Before



Buffet in bulk



Desserts in bulk

After



Live cooking



Smaller portions of desserts

THE SMALL CHANGE THAT LED TO SIGNIFICANT ENERGY SAVINGS

Happy Raja Restaurant, Grand Bay

Company Profile

The Happy Rajah Restaurant at Grand Bay is part of the Happy Rajah chain of restaurants. The company started operations in 2005. The restaurant has around 100 covers and specialises in Indian cuisine.

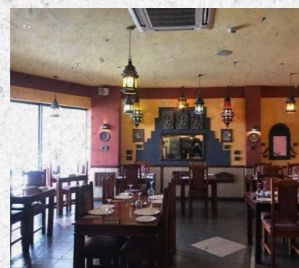
Project description

Happy Rajah Restaurant envisaged a project on energy consumption efficiency. It was observed that the lights in the VIP room remained switched on even when unoccupied. A single switch was used to light both the VIP and non-VIP areas. This was remedied. The VIP and non-VIP areas each now have their own switches.

Key Results

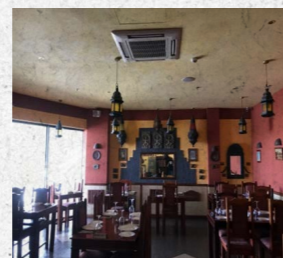
	Before	After	Improvements/reduction
Number of light bulbs used during daylight (7W)	63	40	23
Energy consumed/8hrs day Units	2.856	2.240	0.616
Energy consumed/month in Units	85.68	67.2	18.48
Electricity costs/month (Rs196 per kWh)	16,793	13,171	3,622

Before



The lights in the VIP area remained switched on during the day even when unoccupied

After



The lights in the VIP area are now switched off when unoccupied. During the day, guests are encouraged to take seats close to the windows, which are sunlit

KITCHEN WASTE AND RAINWATER HELP TO MAINTAIN AN ORGANIC GARDEN

Hotel 1

Company Profile

Hotel 1 (Name of hotel not provided for anonymity reasons), a 4-star resort, is located on the east coast of Mauritius. The hotel operates 100 rooms along with other services including a spa and outdoor swimming pool.

Project description

The hotel often received requests for organic food from guests. Following these requests, the resort decided to set up an organic vegetable garden. The existing compost bin was put in use and staff were trained on waste segregation for composting. A schedule for filling and rotating the bin was introduced. In addition, the garden was green-fenced to protect the produce from excess sunlight. An unused 100-litre waste bin was installed in the garden for rainwater harvesting.

Key Results

Area	Before	After	Improvements/reduction
Segregation of Waste	Treated as general waste	150Kg of peels and rinds of fruits and vegetable wastes collected	Organic wastes segregated for recycling
Composting	None	120 L/3 months	No chemical fertilisers used Savings on purchase of compost (Rs 20/Kg)
Rain Water Harvesting	None	100 L/week	Depending on the season, savings on use of tap water Recycling of 100L Waste Bin
Organic herbs and bok choy	Provision from suppliers	Available in organic garden	Savings on purchase from suppliers



Waste screening and Composting

Garden preparation and rain water harvesting



Monitoring and sustaining the organic garden

FOOD WASTE REDUCTION IN STORES WAS AN EYE OPENER

Paradise Cove, Anse La Raie

Company Profile

Paradise Cove Boutique is a luxury 5-star hotel located in the north of Mauritius. The property has 67 rooms and four restaurants along with a swimming pool.

Project description

The resort was facing a serious issue concerning expired food commodities. The following measures were implemented:

- The store was re-arranged under the FIFO method
- Visual management techniques helped to find items with a shorter shelf-life
- Commonly expired items were identified and their purchase/storage was closely monitored to reduce spoilage
- The store coordinated with the kitchen and finance departments to ensure that items due to expire are used first

Key Results

	Before	After	Improvements/reduction
Cost of expired products for the period 2021-May 2022 (Rs.)	16,270	1180	↓ 93%
Time taken to generate expired products report	½ day	5 mins	↓ 98%

Before



Products are stored in a disorderly manner



No system in place to identify commonly expired products

After



Fixed place for every item



Visual management system to identify commonly expiring products

ABANDONED LAND REFORESTED AND GIVEN A SECOND LIFE

Pik Pik Studios Management Co Ltd, Le Morne

Company Profile

Pik Pik Studios Management Co Ltd (commonly known as Pik Pik Studios) is a tourist residence located in Black River. It comprises seven studios, two swimming pools and one tennis court.

Project description

Pik Pik Studios is committed to protect and conserve land and marine life. The company came up with the idea of reforesting a nearby land with endemic plants. They managed to receive a donation of 400 endemic plants. The Forestry Services, the Ministry of Agro-Industry and Food Security and Le Morne Heritage Trust Fund allowed the company to reforest an abandoned land of 8,000 m2 near the property.

Key Results

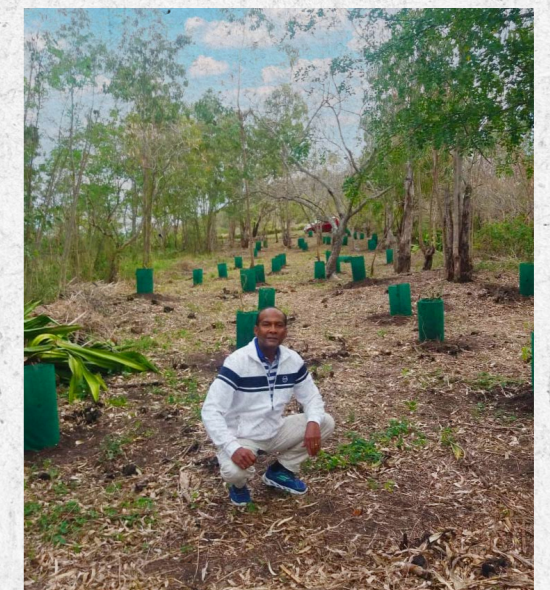
As at date, 700 endemic plants have been put in soil.

Before



Abandoned land

After



The CEO proudly posing near the endemic plants

INVESTMENT IN LED LAMPS REDUCES COSTS

Pik Pik Studios Management Co Ltd, Le Morne

Company Profile

Pik Pik Studios Management Co Ltd (commonly known as Pik Pik Studios) is a tourist residence located in Black River. It comprises seven studios, two swimming pools and one tennis court.

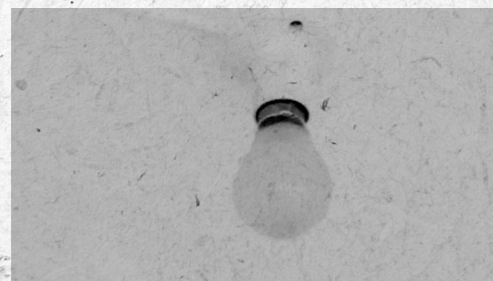
Project description

Incandescent bulbs are used to light all the seven studios of the property. The bulbs were providing poor illumination and often had to be replaced due to fusing. Pik Pik Studios decided to switch to a more energy efficient lighting equipment to reduce costs. All the existing incandescent bulbs were replaced with LED devices that provided better lumen values at 1/10th of the overall power consumption.

Key Results

Item	Before	After	Improvements/Reductions
Lighting cost (20% of overall electricity bill) per month (MUR)	2,606	293	↓ 89%
Amount of electricity consumption by bulb per month (kWh)	260	30	↓ 89%
Electricity bill per month (MUR)	April 2022 - 11,500	May 2022 - 8,768	↓ 24%
Cost of 70 bulbs + maintenance (MUR) annually	11,200	8,540 (every 8 years)	↓ 24%

Before



40W incandescent bulb

After



4.5W LED bulb

INVESTMENT IN RAINWATER HARVESTING SYSTEM PAYS OFF

Pik Pik Studios Management Co Ltd, Le Morne

Company Profile

Pik Pik Studios Management Co Ltd (commonly known as Pik Pik Studios) is a tourist residence located in Black River. It comprises seven studios, two swimming pools and one tennis court.

Project description

Pik Pik Studios decided to start harvesting rain-water to reduce its water bill. A 2,000-litre capacity tank was installed on the roof to collect water to be used for gardening purposes.

Key Results

The rainwater harvesting system has reduced the total usage of tap water, representing a savings of Rs 450 per month.

Before



Irrigation cost Rs450 per month

After



No irrigation cost with rainwater harvesting system

CUSTOMISED SOLUTIONS HELP TACKLE FOOD WASTE IN SEVERAL RESTAURANTS

The Ravenala Attitude, Balaclava

Company Profile

The Ravenala Attitude, part of the Attitude Group, is a 4-star resort in Balaclava. It operates 272 rooms, including 130 couple suites, 40 executive suites and 102 family suites. The facilities include exotic gardens and two large swimming pools. The Ravenala boasts 10 restaurants with more than 750 covers.

Project description

The restaurants were concerned with a growing food waste problem. Following a two-week pilot testing in Madam Ming restaurant, the other restaurants started collecting food waste data with a special monitoring in the pastry kitchen. A brainstorming session allowed to identify solutions such as:

- Menu and portion redesign
- Live cooking instead of buffet
- Cooking to order as per daily reservation instead of cooking to stock
- Replicating good practices already in place to reduce food waste by children.

Key Results

	Before	After	Improvements/Reductions
Average monthly food waste per cover (g)	129.6	28.8	77.8%

Before



No proper monitoring of food waste

After



Peels used to make vegetable stock and brochettes with breakfast fruits

PREVENTIVE MAINTENANCE BRING DOWN ENERGY BILLS

Récif Attitude, Pointe Aux Biches

Company Profile

The Récif Attitude Hotel is a 3-star resort located in Pointe aux Biches. It comprises 70 bedrooms, restaurants, a swimming pool and gym facilities.

Project description

The hotel received many complaints due to the mal-functioning of the AC units in the rooms. The maintenance department was understaffed, which led to frequent fire-fighting situations to attend to customer complaints. A preventive maintenance plan was put in place taking into account the lifespan of AC units in the resort. The plan was piloted in five rooms and would be extended to other rooms in a set period of time.

Key Results

Improvements/Reductions

Power consumed per AC unit (%)	↓	27.4%
Customer complaints with regards to AC units (%)	↓	55%

Before



Poor maintenance of AC units

After



Preventive maintenance in action

RECIF ATTITUDE 2022

Checklist	Tasks	Frequency
1. Inspect and clean drain line and drain pan	<input type="checkbox"/> Inspect drain line and drain pan for build-up <input type="checkbox"/> Remove clogs for proper drainage	Fornightly
2. Inspect electrical wirings and controls	<input type="checkbox"/> Inspect for loose wires and rusty terminals <input type="checkbox"/> Clean/dust out electrical enclosure area	Fornightly
3. Inspect and clean air registers and ductwork	<input type="checkbox"/> Test thermostat fan speeds (if applicable) <input type="checkbox"/> Test & calibrate thermostat temperature	Fornightly
4. Lubricate blower and condenser fans	<input type="checkbox"/> Check that fan wheel spins freely	Fornightly

Preventive maintenance checklist plan

EFFICIENCY IN REFRIGERATOR USAGE IMPACTS POSITIVELY ON ELECTRICITY CONSUMPTION

Thali Express, Goodlands

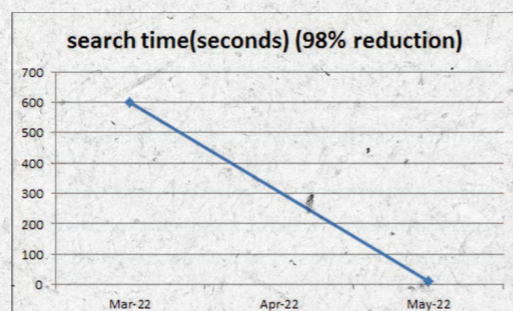
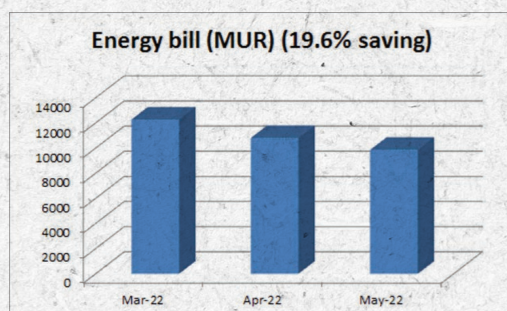
Company Profile

Thali Express is a family business in Goodlands. The restaurant has 30 covers and specialises in Indian cuisine.

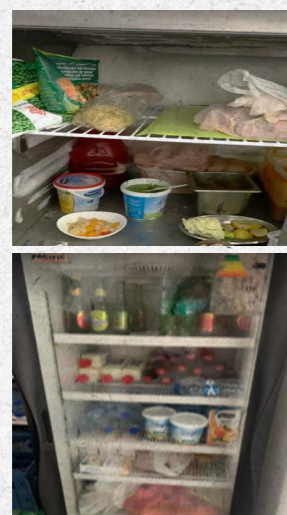
Project description

The refrigerator at Thali Express was over-stuffed and disorderly, which led staff to take longer than usual to retrieve and store items. Low aeration forced the compressor to consume more power. Staff were trained on good housekeeping techniques. Unnecessary items were removed to make room for needed items only that were re-arranged and labelled in designated locations inside the refrigerator.

Key Results



Before



Cluttered fridge

After



Uncluttered fridge

SMART USAGE OF MICROWAVE SAVES TIME AND ENERGY

Thali Express, Goodlands

Project description

It was taking more than 30 minutes to heat food in the microwave. It turned out that food was not being defrosted before being heated in the microwave. The microwave remained switched on even when not in use. Moreover, random items were kept on the microwave and staff did not use appropriate containers with covers to heat dishes.

To address the situation, the following measures were implemented:

- Required items are now removed at least two hours before to allow for defrosting
- No items are kept on the microwave and the appliance is switched off when not in use
- Only glass containers are used to warm food

Key Results

	Before		After		Improvements/reductions
	Time	Electricity Consumed (kw)	Time	Electricity Consumed (kw)	
Amount of time to heat gravy (minutes)	30 minutes	3.1	10 minutes	1.0	66.7% ↓
Amount of time to heat chicken curry (minutes)	40 minutes	4.2	15 minutes	1.6	62.5% ↓
Amount of time to heat mixed vegetables curry (minutes)	35 minutes	3.6	12 minutes	1.3	65.7% ↓
Amount of time to heat cottage cheese (minutes)	28 minutes	2.9	9 minutes	0.9	67.9% ↓

Before



The microwave remains switched on even when not in use. Random items are kept on the microwave



Use of plastic container to heat food

After



Microwave is switched off when not in use. Items are no longer kept on the microwave



Use of glass covered container to heat food

FOOD WASTE REDUCED IN THE KITCHEN

Tropical Attitude, Trou d'Eau Douce

Company Profile

Tropical Attitude is a 3-star hotel, located in Trou d'Eau Douce. It comprises 69 bedrooms and its facilities include a bar and restaurants.

Project description

A high amount of food waste was generated in the kitchen. The following measures were implemented:

- The portions were resized for the top six overproduced items, i.e., oatmeal, beans, pulses, pork, potatoes and rice
- Vegetable peels were used to make stock and compost
- The FIFO method was applied in the store to prevent items from piling up

Key Results

	Before	After	Improvements/Reductions
Total Preparation Food Wastes in KG (Period April – May 2022)	107.8	57.6	↓ 47%
Total Overproduced Food Waste in KG (Period April – May 2022)	25.6	3.1	↓ 88%
Rate of compost production per month (%)	0%	46%	↑ 46%
Monthly savings in LPG consumption following reduced preparation of the top six food mentioned above (kg)	0	14.39	↑ 14.4kg
Amount of carrot peels made into soup (kg)	0	7.425	↑ 7.4kg

Before



No labelling of food items in refrigerators

After



Labelling of food items in refrigerators with Production and Best Before dates

Peels sent to make compost



Carrot peels made into vegetable stock



MAINTENANCE TEAM MAKES IT HAPPEN FASTER

Tropical Attitude, Trou d'Eau Douce

Project description

An understaffed maintenance department at Tropical Attitude was unable to sort out problems such as pipe leakages or electricity faults within reasonable delays. The department was unorganised and had limited space to store tools and equipment. Inadequate number of tools meant that staff had to wait before they could obtain them to fix problems within the shortest time. The following measures were implemented:

- Additional space was provided for the maintenance department
- Good housekeeping techniques were used to promote better storage
- Toolkits were provided to each staff to reduce waiting time
- Visual management techniques were introduced to monitor daily work in critical areas such as AC leakages, toilet leakages, tap mixer issues, shower leakages, among others.

Key Results

	Before	After	Improvements/reduction
Workshop space (m ²)	3.94	11.4	↑ 7.46
Average time taken to solve critical tasks (days/minutes)	3 to 16 days	Average of 1 hour,	↓ from 3 days to 1 hour

Before



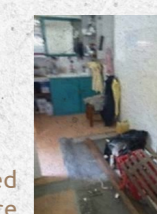
Scattered tools and cluttered space

After



Rearranged and labelled tools

Increased physical space



Visual management to track daily performance



Toolkits for each staff and Preventive Maintenance in place

GOING DIGITAL TO REDUCE PAPER WASTE

Tropical Attitude, Trou d'Eau Douce

Company Profile

Tropical Attitude is a 3-star hotel, located in Trou d'Eau Douce. It comprises 69 bedrooms and its facilities include a bar and restaurants.

Project description

Tropical Attitude was consuming an average of 5,280 paper sheets yearly in its front office department for billing purposes. The management adopted digital solutions to reduce paper consumption. Smart devices such as tablets were then acquired for front-office staff.

Key Results

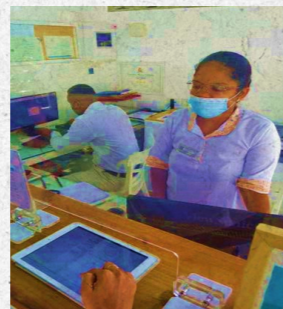
	Before	After	Improvements/reductions
Average cost of billing (MUR) per client	Rs 15.41	Rs 7.84	49.1% ↓
Average paper usage (g) per guest night	1.36g	0.52g	62% ↓
Annual average cost of paper for billing processes (MUR)	2200	1570	29% ↓

Before



Using paper in the billing process

After



Using smart tablet in the billing process

SUSTAINABLE PRACTICES RESULT IN BETTER MORALE AND COST SAVINGS

Villa Coco Chérie, Poste Lafayette

Company Profile

Villa Coco Chérie is a three-bedroom bungalow located at Poste Lafayette on the east coast of Mauritius.

Project description

Villa Coco Chérie was committed to reduce its energy and water consumption. The following measures were implemented:

- Introduction of a rain water harvesting system
- Replacing normal bulbs with solar bulbs
- Replacing gas heaters with solar water heaters

Key Results

	Before	After	Improvements/reductions
Average monthly water consumption (m ³) (Jan to Mar 2022 and Apr to May 2022)	431	279	↓ 35%
Average monthly electricity consumption (kwh) (Jan to Mar 2022 and Apr to May 2022)	9000	3975	↓ 56%

Before



High water bills

After



Rainwater harvesting to decrease fresh water consumption

ENERGY SAVING OPPORTUNITIES WITH EQUIPMENT EFFICIENCY

Hilton Mauritius, Flic-En-Flac

Company Profile

Hilton Mauritius Resort and Spa is a 5-star beachfront property in Flic-en-Flac. It comprises 192 bedrooms, three restaurants and a swimming pool.

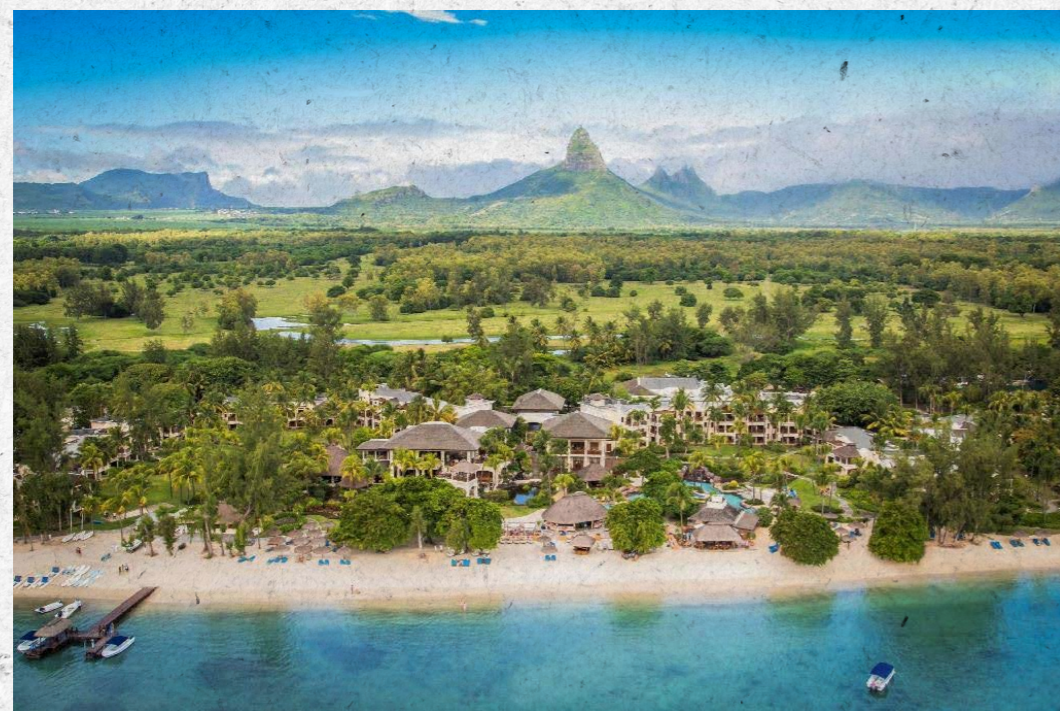
Project description

Chillers accounted for about 40% of the energy consumption at Hilton Mauritius. The chilling system supplied cooled air to rooms and BOH area including the offices and banquet hall. The following measures were implemented to reduce energy consumption by chillers:

- Chillers were set at 9°C in the morning and 7.5° C in the afternoon
- AC units in rooms were set at 23°C
- Idle devices were switched off including cold displays, extractors and Air Handling Units.

Key Results

	Before	After	Improvements/reductions
Amount of electricity consumed by chillers per month (KwH)	117,273	93,291	↓ 20.4%



FASTER CUSTOMER SERVICE

Happy Rani, Tamarin

Company Profile

The Happy Rani Restaurant is operational since July 2021 in Tamarin. It has 50 covers and offers Indian cuisine.

Project description

The store at Happy Rani Restaurant was disorganised, which led to long search times for the staff. Customers had to wait almost 30 minutes before they were served. The following measures were implemented:

- Shelves were rearranged to reduce clutter
- The FIFO method was applied for better product management in the store and kitchen
- Visual management was introduced on racks and shelves for easy traceability of products

Key Results

	Before	After	Improvements/reductions
Search time in store (Mins)	10	2	↓
Space released on shelves %	50	70	↑
Time to service customers (Mins)	30	20	↓



EFFICIENT USAGE OF DISHWASHER REDUCES WATER CONSUMPTION

Happy Rani, Tamarin

Company Profile

The Happy Rani Restaurant is operational since July 2021 in Tamarin. It has 50 covers and offers Indian cuisine.

Project description

It was observed that the dishwasher was not being used at full load. The same amount of water was used at both half and full load capacity. A standard operating procedure was put in place to use the machine more efficiently.

Key Results

	Before	After	Improvements/reductions
Frequency of daily dish washing	15	13	↓ 13.3%
Average daily water consumption of dishwasher (m ³)	15.8	13.5	↓ 14.6%



REDUCING AND MANAGING FOOD WASTE

Alizée Resort Management Ltd, Trou Aux Biches

Company Profile

Alizée Resort Management Ltd owns and manages two properties, namely, Casuarina Resort & Spa and Le Cardinal Golf Resort & Spa, both located at Trou aux Biches. The Casuarina Resort (3 Star Plus) consists of 106 rooms and 14 family cottages, two swimming pools, one exclusive Spa, three restaurants, a mini-club and a diving centre. Le Cardinal (5 star) comprises 13 suites and has shared facilities with Casuarina Resort.


Project description

Alizée Resort Management Ltd has pledged to reduce food waste. Since the reopening of both hotels, Casuarina Resort & Spa and Le Cardinal Exclusive Resort back in October 2021, high rates of food waste have been observed. Following data collection on food waste and several brainstorming sessions, the following measures were implemented:

- Segregation of food waste: Coloured bins were introduced and staff were trained to segregate food waste for different purposes such as animal fodder, compost making, etc
- Menu planning: Guests were asked about their preference and dietary restrictions at check-in. Chefs planned their menus accordingly to prevent overcooking
- Review of procurement practices: Goods are now purchased on a weekly basis or daily basis, e.g. fruits and vegetables to prevent spoilage. JIT method was implemented for certain products like bread. The chefs placed their orders based on the number of clients. This method has led to zero waste
- Better storage practices: The store layout was completely reviewed and rearranged under the FIFO method. Chefs are informed in advance if a product is about to expire. The target of zero expiry products has been achieved
- Good housekeeping in the kitchen: Food items were rearranged and placed in specific containers which were labelled. This has contributed to the elimination of food waste during preparation and due to spoilage
- Menu redesigning: The menu has been redesigned for both external and internal customers after their feedback and suggestions
- Recycling of food: The recycling of food has been reinforced. Left-over cooked food is either reused for other menus or given to staff. Over-ripe fruits are used to make jams, pastries, desserts, etc
- Compost making: In addition to leaves and grass, vegetable and fruit peels are being used to make compost

Key Results

	Before	After	Improvements/reductions
Amount of food wastes generated (kg) (May to June 2022)	399.3	194.35	51.3% ↓

Before	After
 <p>Half loaded dishwasher</p>	 <p>Good housekeeping in kitchen</p>
 <p>Food waste in mess room</p>	 <p>Waste segregation and posters to create awareness</p>

REPLACING MINI HOTEL TOILETRIES TO REDUCE PLASTIC WASTE

Alizée Resort Management Ltd, Trou Aux Biches

Company Profile

Alizée Resort Management Ltd owns and manages two properties, namely, Casuarina Resort & Spa and Le Cardinal Golf Resort & Spa, both located at Trou aux Biches. The Casuarina Resort (3 Star Plus) consists of 106 rooms and 14 family cottages, two swimming pools, one exclusive Spa, three restaurants, a mini-club and a diving centre. Le Cardinal (5 star) comprises 13 suites and has shared facilities with Casuarina Resort.

Project description

The Enterprise Improvement Team made an inventory of plastic waste generated from the hotel. They studied several options to replace the tiny shampoos, shower gel bottles and wrapped soap provided to guests. The team opted for a two-in-one liquid soap to replace the miniature shampoos and shower gel tubes which Alizée Resort has been providing to its guests for over a decade now. Dispensers were placed in all 106 rooms and 14 family cottages.

Key Results

- Reduction in plastic waste: In general, for a night stay for two persons in one room, two shampoo tubes and two shower gel tubes were placed, which represents 0.040g of plastic waste. With the new two-in-one liquid bath soap dispensers, Alizée Resort has been able to significantly reduce an estimated amount of over 90 g of plastic waste since end of March 2022 till end of April 2022.
- Cost reduction: Every week, 250 shampoo and shower gel tubes (7.5 litres) were procured by the housekeeping department. Now only four bottles of two-in-one liquid soap of five litres each is procured weekly. Cost has been reduced by 86 %.

Before



Every day, left over shampoos and shower gel tubes are collected and thrown



Many customers barely use half of these products which unfortunately cannot be reused

After



Swapping mini shampoo and soap bottles with refillable dispensers



Procuring more two-in-one liquid soap for less cost than shampoo and shower gel tubes

REDUCING FOOD WASTE FOR BETTER RESOURCE UTILISATION

Beach House Restaurant, Grand Bay

Company Profile

The Beach House Restaurant is situated in Grand Bay and specialises in burgers and grilled meat. The restaurant has 200 covers.

Project description

The Management of the restaurant decided to apply good housekeeping techniques in the kitchen to reduce the quantity of expired products. To this effect, all unnecessary items were discarded from the kitchen and products from shelves were rearranged with labels to reduce search time. Following which, the FIFO system was implemented.

Key Results

	Before	After	Improvements/reductions
Amount of expired food (kg)	23.97	8.7	↓ 63.7 %
Space gained (m ²)	0.97	1.23	↑ 26.8 %
Amount of wasted food (spoiled in storage) (kg)	17.48	8.00	↓ 54.2%
Search time (secs)	33.84	23.76	↓ 29.8%

Before



Kitchen shelves were disorganised with no FIFO method in place

After



Kitchen shelves were reorganised using the FIFO method. Shelves were added to improve storage space

TACKLING OF FOOD WASTE WITH GOOD HOUSEKEEPING

Happy Rani Restaurant, Phoenix

Company Profile

The Happy Rani restaurant is located at Phoenix and has a capacity of 50 covers. The restaurant specialises in Indian cuisine.






Project description

The management decided to embark on a project to reduce food waste. Data was collected to track food waste and the following measures were implemented:

- Segregated bins for waste measurement: Specific bins were put in place for preparation, plate scrapings, and spoilage waste
- Introducing better storage practices: The store layout was reviewed and rearranged in line with the FIFO principle for fresh vegetables in the store. The rearranged store now has better aeration and less humidity, all contributing to less spoilage of food items
- Reduction in preparation waste: Preparation waste was reduced by using vegetable peels and chicken waste to make soups and broth
- Recycling of waste: Lime peels are mixed with white vinegar and used as a degreaser
- Reduction of overproduced food: A proper menu planning is done to avoid excess food being cooked.

Key Results

	Before	After	Improvements/reductions
Amount of preparation waste (kg)	28	20	28.5% ↓
Amount of overproduced food (kg) 'Daal Makhni'	2.5	1.2	52% ↓

Before	After
 <p>Waste not measured</p>	 <p>Waste measurement culture</p>
 <p>Bins not segregated</p>	 <p>Storage arrangements reviewed</p>
 <p>Poor storage facilities (Fresh vegetable and bin kept together)</p>	 <p>Re-use/ Recycling of food preparation waste</p>

KITCHEN IMPROVEMENTS LEAD TO FOOD WASTE REDUCTION

Lagoon Attitude, Cap Malheureux

Company Profile

Located in Cap Malheureux, Lagoon Attitude, a 4-star hotel, provides accommodations with five restaurants catering for 330 covers, a swimming pool and a fitness centre. Other facilities include a bar, a shared lounge, as well as a garden.

Project description

The kitchen staff compiled data on the types of food waste in the restaurants and their frequencies. Several measures were implemented:

- Improving communication between banquet and kitchen staff for better coordination
- Introducing on-demand cooking
- Reviewing the menu by redesigning portions of overproduced food
- Instilling regular inspection during food preparation
- Managing and monitoring inventory
- Sequencing of jobs to manage overproduced food

Key Results

	Before	After	Improvements/reductions
Total waste produced (kg)	394.55	101.4	74.3% ↓
Over-produced food (kg)	202.3	36	82% ↓
Average amount of waste per cover (kg)	0.142	0.090	36% ↓
Average amount of over produced food per cover (kg)	0.075	0.032	57% ↓

Before	After
 <p>Food prepared in large amount for guests</p>	 <p>On demand cooking</p>
 <p>Food and drinks served in advance at the buffet table</p>	 <p>Service stations to control portion size and maintain food quality</p>

CONCLUSION

The outbreak of the COVID-19 pandemic has firmly re-established the importance of a sustainable and resource friendly tourism ecosystem. All said, it is widely agreed that there is no business as usual, particularly in what has been termed as the new normal environment. Operation COSHARE has allowed the emergence of new dynamics that have contributed in the reengineering of business operations in the local tourism sector. These new dynamics prompt for the optimal utilisation of critical resources such as water and energy.

Throughout the implementation phase of Operation COSHARE, all stakeholders, in particular employees and management, have invested significantly in projects that have reaped their fruits. It is a fact that the projects have not only positively impacted the bottom-line of enterprises but also contributed in giving a new dimension to industrial operations at the national level. The case studies stand as an inspiration for other enterprises in the tourism value chain and intends to guide them on their journey towards increased performance, stronger resilience and excellence.



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Ansam pou enn meyer kalite lavi

National Productivity and Competitiveness Council
3rd Floor, The Catalyst
Silicon Avenue, Cybercity
Ebene 72201
Republic of Mauritius
T: (230) 467 7700 F: (230) 467 3838
E: npccmauritus@intnet.mu W: www.npccmauritus.org

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