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COMPOSTING • RENEWABLE ENERGY • SUSTAINABILITY



# AFTER THE STORM

Debris management strategies when  
Mother Nature delivers knockout blows.

**GREEN RETURNS ON NATURAL CAPITAL INVESTMENTS**

**ROLLING OUT RESIDENTIAL ORGANICS COLLECTION • DIGESTATE TREATMENT VIA COMPOSTING  
BIOGAS POWER IN VERMONT • PUNTA CANA RESORT LINKS TOURISM AND SUSTAINABILITY**



Dominican Republic

# Launching Recycling, Composting In Resort Region

Puntacana Resort & Club pioneers integrated waste management that includes a materials sorting and recycling facility and vermicomposting.



In 2010, Punta Cana's Descarga Cero (Zero Discharge) recycling program captured 41.29 tons of cardboard (left) and 15.8 tons of aluminum (right).

## Jake Kheel

**IN** 1969, Theodore Kheel, a prominent labor mediator in New York City, and a group of American investors purchased a large tract of land in the unsettled and lightly populated eastern tip of the Dominican Republic. For a relatively modest sum they were able to purchase nearly 30 square miles of land including six miles of beach and coastal front. The area had no roads, electricity or infrastructure. Kheel and his Dominican partner Frank Rainieri, in what today may seem like an obvious decision, determined its future would lie in tourism.

Fast forward to the present, and that undiscovered eastern end of the Dominican Republic has become Punta Cana, one of the most significant tourism destinations in the Caribbean. Punta Cana receives more than 2 million tourists annually, has more than 35,000 hotel rooms and represents a third of the foreign investment made in the Dominican Republic. While the original purchase, now known as Puntacana Resort & Club (PCRC), represents only a small portion of the Punta Cana tourism

destination in terms of land area, it was the initial motor for tourism in the region through development of the first privately owned international airport in the world. Perhaps more significantly, PCRC — which includes the airport, hotels, residential and golf course communities, and a variety of resort amenities — has become a model of economic success based on a philosophy of sustainable development.

The Punta Cana region, while still a force in Caribbean tourism, is at an important crossroads. Waste management is one of its most significant challenges. The region produces large quantities of waste (estimates vary widely from 80 to 200 tons/day), with nearly all of it sent to open-air landfills without liners, environmental controls or oversight. With limited rainfall and no surface water sources, the resorts and surrounding communities of Punta Cana depend solely on subterranean aquifers for their fresh water. Yet few, if any, reliable environmental controls currently exist to protect this vital water resource from

contamination from sources such as landfills. The Punta Cana region has dozens of authorized as well as illegal dump sites and numerous waste collection companies that vary in quality of service but generally charge high prices. Additionally, the public waste collection system has become highly politicized, making implementation of best practices in waste management a significant challenge.

In 2007, PCRC made a strategic decision to implement a more sustainable approach to its waste management problem. Faced with high costs (nearly \$200,000 annually in waste hauling), extreme variability in tipping fees, poor service and serious environmental concerns, the resort decided to implement "Descarga Cero," an integrated waste management system.

An audit evaluated all of the waste produced throughout the property, including the hotels, airport and all residential communities, and determined significant hauling fees could be avoided through sorting of waste, sale of re-

cyclable materials and alternative uses for organics. The risk at the time was lack of markets for recyclable materials in the region. The few existing recycling companies, whether dedicated to export or repurposing of materials, were based four hours away in the city of Santo Domingo. Similarly, the resort had no experience with composting or other alternatives for organic waste management.



The Ecological Foundation's vermicomposting project processes more than 24,000 pounds of pre and postconsumer food waste and 29,000 pounds of livestock manure annually.

## Recycling Center And Organics Diversion

In 2008, despite these challenges, the resort designed and built the Puntacana Center for Recycling and Incineration (CRI) with facilities for manual sorting of materials arriving from international flights, weighing and compacting, and incineration. The CRI began receiving between 6 to 8 tons/days of unclassified waste from international flights and the airport terminal, depending on the number of passengers. Waste was manually sorted into different categories of recyclables. Remaining materials from international flights are incinerated according to international airport standards.

As the CRI began sorting and packaging recyclable materials such as glass, cardboard, plastics, metals, and newspapers and magazines, a market for recyclable materials immediately emerged in the region. In fact, the same waste hauling company that had been charging PCRC exorbitant fees began purchasing recyclable materials that previously would have gone to the

landfill. To date, CRI separates and sells close to 47 percent of arriving materials as recyclables, generating savings of close to \$110,000 U.S. annually in hauling fees and generating \$1,500 U.S. a month in sale of materials.

Simultaneously the resort undertook a campaign throughout its hotels, restaurants and more than 1,000 private residences to begin sorting waste into organics, recyclables and trash.

Through a door-to-door outreach campaign, creation of an instructional video and ongoing oversight and educational programs, PCRC has begun the long-term transition toward becoming a zero waste community. All sorted recyclable materials from the restaurants and hotels are taken to the CRI.

Organic materials are sent either to a pilot worm composting project run by the Puntacana Ecological Foundation or to local pig farmers. A feasibility study for an anaerobic biodigester to convert remaining waste into biogas is underway; other options for managing organics are also being evaluated. The Ecological Foundation has expanded its worm composting operations significantly, however management of growing quantities of organic waste from a recently opened supermarket, additional restaurants and continuously growing communities continues to be a challenge.

In 2009, the diversion/recycling program collected a total of 185,865 units (actual items) of recyclables — including newspapers, magazines and cardboard, and PET, aluminum and metal containers as well as glass beer, rum, soda, champagne and wine bottles — totaling about 377 tons. In 2010, the program recycled more weight just shy of 449 tons, but fewer units (182,356). The numbers reflect the resort's commitment to utilizing more bulk items.

The vermicomposting project is processing an average of 2,020 lbs/month of pre and postconsumer food waste along with 2,434 pounds of livestock manure from the resort's ranch, petting zoo and area cattle and goat farms. All the vermicompost — 31 tons in 2010 — is either sold to local landscapers or used by the Ecological Foundation in

vegetable production. Getting golf courses on board is the next step.

As a result of implementation of Descarga Cero and Puntacana Resort & Club's initiatives, a movement is underway in the region to improve waste management practices. A market for recyclables has emerged, with buyers from Santo Domingo and exporters from other countries regularly purchasing materials. Close to a dozen hotels have begun some degree of recycling, and three different sorting and recycling plants are now operating in the area. Additionally, several companies are now purchasing waste kitchen oils for production of biodiesel and collecting toxic and hazardous materials. Puntacana Resort & Club has shared its pioneering experiences with literally hundreds of students, developers, executives and government officials, with the idea of encouraging adoption and improvement of its program by others.

Though these new recycling operations demonstrate promise for the environmental future of the region, significant challenges remain. To date, nearly all waste management improvements have been initiated by the private sector with little to no government funding or regulatory support. Local officials, who largely control waste management policy in the region, have demonstrated little will to implement even the minimum in sound waste management practices, and worse, have been repeatedly documented in cases of corruption and bribery related to waste hauling. Though a number of landfills have begun working on obtaining environmental permits, including the first landfill in the country with permits authorized by the Ministry of Environment, monitoring and government oversight is generally sporadic and lacking. Illegal dumpsites continue to operate.

The challenge for the Punta Cana region overall is more profound. With a growing number of resorts and surrounding communities, the future economic sustainability of the region is inherently linked to long-term environmental sustainability. Without significant improvements in the way the region handles its garbage, tourism in the area could be in jeopardy. ■

*Jake Kheel serves as Environmental Director for Punta Cana Resort & Club. He also directs the Puntacana Ecological Foundation.*