NS-51 - Tourism and Waste in the Dominican Republic

Dominican Republic

NAMA Seeking Support for Implementation

A Overview	
A.1 Party	Dominican Republic
A.2 Title of Mitigation Action	Tourism and Waste in the Dominican Republic
A.3 Description of mitigation action	The goal of the NAMA is to achieve wide-spread adoption of alternative energy technologies and address waste management in the tourism sector, through the following types of activities, individually or in combination: • Modular (distributed) biomass facilities in high-density touristic areas. These technologies will be based in biomass and solid waste direct firing, combined heat and power, and gasiffiers. The produced steam and/or hot water are used for laundry, swimming pools, kitchens, cooling (via heat exchangers and absortion units). Alternatively, the biomass can fuel a combined heat and power facility, resulting in usable heat and electricity. In either case, the biomass would largely comprise tree and shrub refuse/clippings from hotel properties, and could also include separated organic waste or other regional biomass sources. • Medium-scale refuse-derived fuel (RDF) and biomass densified fuel (BDF) facilities that potentially include separation and combustion of waste from the surrounding community to produce electricity and heat. Such facilities would likely involve participation from the local power supplier. • Renewable energy solutions that are expected to lower energy costs for the tourism sector. Currently, hotels energy needs are being supplied with diesel, natural gas and LPG and electricity produced with fuel oil (typically, electricity in touristic areas is provided by utilities, which operate as captive grids and almost all electricity of such companies is produced in diesel engines). • Some of these technologies will also support improved management of waste, reducing adverse impacts on the tourism sector. Frecuent and more evironmental friendly tourists claim the cumulate of solid waste in municipalites (and some visible unregulated dump sites) hurts the image of the sector. • These actions would be encouraged through 1) pilot projects that demonstrate the technical and economic viability of the alternative energy technologies (helping to address technology risk), 2) government efforts to streamline the permitting process, 3) a financial mechanism that reduces or eliminates the need for an up-front equity investment, structures the financial deal such that the hotel sees net benefits starting in the first year, and enables transaction costs to be incorporated into the larger financial package; and 4) the support from local people and small companies which can participate as fuel suppliers, increasing the socioecnomics co-beneffits of the project. • While ultimately the NAMA would be extended to all the tourist regions in the Dominican Republic, the proposed initial scope of the NAMA would encompass the Bavaro-Punta Cana region—the largest

	tourist district in the country. This region contains more than 45 percent of the hotel rooms in the Dominican Republic (over 30,000 last year) and another 24,000 rooms are under development or construction. An additional 14,000 rooms projected in near-by Miches, Hato Mayor Province could also be included in the initial scope of the NAMA. Additionally, many of these hotels are large and well-positioned to initiate investments. Further, there are strong actors in the region who are actively exploring alternative energy solutions.
A.4 Sector	[X] Energy supply [ ] Residential and Commercial buildings [ ] Agriculture [X] Waste management [ ] Transport and its Infrastructure [ ] Industry [ ] Forestry [ ] Other
A.5 Technology	[X] Bioenergy [X] Energy Efficiency [X] Hydropower [X] Wind energy [ ] Carbon Capture and Storage [ ] Land fill gas collection [X] Cleaner Fuels [ ] Geothermal energy [X] Solar energy [ ] Ocean energy [ ] Low till / No till [ ] Other
A.6 Type of action	[X] National/ Sectoral goal [ ] Strategy [X] National/Sectoral policy or program [ ] Project: Investment in machinery [ ] Project: Investment in infrastructure [ ] Project: Other [ ] Other
A.7 Greenhouse gases covered by the action	[ ] CO2 [ ] N2O [ ] PFCs [ ] CH4 [ ] HFCs [ ] SF6 [ ] Other

B National Implementing Entity

B.1.0 Name	National Council for Climate Change and Clean Development Mechanism (NCCCCDM)
B.1.1 Contact Person 1	Omar Ramirez-Tejada
B.1.2 Address	Av. Winston Churchill No. 77, Edificio Grucomsa 5to Piso, DN, Dominican Republic
B.1.3 Phone	809 472 0537
B.1.4 Email	o.ramirez@cambioclimatico.gob.do
B.1.5 Contact Person 2	Moises Alvarez
B.1.6 Address	Av. Winston Churchill No. 77, Edificio Grucomsa 5to Piso, DN, Dominican Republic
B.1.7 Phone	809 472 0537
B.1.8 Email	m.alvarez@cambioclimatico.gob.do
B.1.9 Contact Person 3	Federico Grullon
B.1.10 Address	Av. Winston Churchill No. 77, Edificio Grucomsa 5to Piso, DN, Dominican Republic

B.1.11	Phone	809 472 0537
B.1.12	Email	f.grullon@cambioclimatico.gob.do
B.1.13	Comments	

C Expected timeframe for the implementation of the mitigation action

C.1	Number of years for completion	8
C.2	Expected start year of implementation	2013

D Currency

D.1	Used Currency	AED Conversion to USD: 1

E Cost

E.1.1	Estimated full cost of implementation	370000000
E.1.2	Comments on full cost of implementation	
E.2.1	Estimated incremental cost of implementation	18500000
E.2.2	Comments on estimated incremental cost of implementation	

F Support required for the implementation the mitigation action

F.1.1 Amount of Financial support	310000000
F.1.2 Type of required Financial support	[X] Grant [X] Loan (sovereign) [X] Loan (Private) [ ] Concessional loan [X] Guarantee [X] Equity [X] Carbon finance [ ] Other
F.1.3 Comments on Financial support	The proposed NAMA is supported by hotels and utilities, so is an atractive opportunity to finance, due such companies have a strong cashflow generation capacity and are interested in to co-finance the NAMA to reduce risk and to increase its opportunities of success.
F.2.1 Amount of Technological support	0
F.2.2 Comments on Technological support	The main technological support can be provided by companies experienced in biomass energy and waste to energy systems, equipment manufacturers can be involved as well, provinding support in definitive design, installation, testing, and initial operation of the plants. These companies can work with local manpower to propiciate the best approach in technology transfer, not just using in construction but operation, mainteinance, and repairs.
F.3.1 Amount of capacity building support	1763000
F.3.2 Type of required capacity building support	[ ] Individual level [X] Institutional level [ ] Systemic level [X] Other Human capital
F.3.3 Comments on Capacity Building support	A key factor on NAMA success is the planed involvement of hotels and individuals not necesarilly experienced in thermal and cogeneration technologies. As well, altrough several biomass projects have been already implemented, this technology/activity is relatively new and its necesary to overpass some cultural and knowledge barriers (fossil fuels are viewed as a reliable energy source) and institutional capacity must be increased to face the challenge of switching the toursim

		sector's energy mix (no just to support the implementation but MRV).
F.4	Financial support for implementation required	☐
F.5	Technological support for implementation required	☐
F.6	Capacity Building support for implementation required	☐

G Estimated emission reductions

G.1	Amount	0.85
G.2	Unit	MtCO2e/yr
G.3	Additional imformation (e.g. if available, information on the methodological approach followed)	

H Other indicators

H.1	Other indicators of implementation	There is a full operative biomass and solid waste project operating in the touristic area of Punta Cana. Such project has been successful in terms of the cost savings and the emissions reduction cost-efectivity; with all projects and activities to be included in the NAMA, it is expected the experience be the same or even better.

I Other relevant information

I.1	Other relevant information including co-benefits for local sustainable development	The country's leading foreign exchange earner and an important contributor to the national economy, the tourism industry in the Dominican Republic directly contributed just over $100 billion (4.7 percent) to the GDP in 2011, and including indirect impacts, the tourism sector's contribution was over $325 billion, (15.1 percent). Responsible directly or indirectly for over a half a million jobs, the sector also contributes to the nation's employment. To date, the tourism sector's growth has been powered almost entirely by fossil fuels. In 2005, the hotel sector was responsible for the consumption of 94,700 tons of oil equivalents for air conditioning, hot water, cooking, pumping, lighting, refrigeration and other uses, with an annual growth rate of 4.04%. Over half of the energy was in the form of purchased electricity (53.3 percent), while the rest of the hotel energy demand was met with on-site energy production. In most tourist areas of the Dominican Republic, electricity is provided by private electricity suppliers on isolated grids under territorial concessions from the government to operate in the tourist regions. These private electric companies provide reliable power resources but at a high price, ranging from 26 to 43 cents per KWh. In most cases, this power is generated in inefficient and small (1 to 6 MW) diesel engines, and fueled by imported fuel oil, and to a lesser extent, imported natural gas. In all but the smallest hotels, roughly half of electricity consumption is used for air conditioning. Under the current electricity contracts, hotels are restricted from purchasing electricity from other vendors. Further, contracts typically require hotels to pay for 30 percent of their historic electricity use, whether or not they consume the energy. To meet the remaining on-site energy needs, Dominican Republic

hotels rely on costly imported fossil fuels—mainly diesel (which accounted for 25.8 percent of energy used at hotels in 2011) and liquefied petroleum gas (15.3 percent of energy used at hotels). Solar energy accounted for just 0.2% of hotel sector energy use. To improve petitiveness and further economic development in the sector, a top priority for the tourism industry is lower energy costs.

Beyond the imported fossil fuels, there has been some limited past experience with solar hot water heaters in the tourism sector, and there is recently some experimentation with biomass energy.

The solar hot water heaters did not meet expected performance levels due to poor installation, maintenance and operation, and as a result, are viewed by many hotels as unreliable — a perception that must be overcome before this technology will be tried again. In a more positive example, a biomass-fired boiler has recently been deployed to supply energy to a hotel laundry facility in Punta Cana. The boiler produces steam, which is used to make hot water and heat for the dryers and presses, displacing fuel oil and generating cost savings. The project developers have noted the potential to achieve greater overall efficiency and further savings if additional heat generated by the boiler can be converted to cool air for district cooling (displacing electric load used for air conditioning), with important economic benefits for the hotel operators.

Besides lower cost of energy, another top priority for the turism industry is addressing inadequate waste disposal in the surrounding communities, which is often incompatible with the appearance of the high-class tourism destinations in the area. For example, trash placed in open dumps is less secure than trash managed through other municipal waste solutions, and can result in methane emissions, water contamination and disease. Certain alternative energy solutions, such as generating refuse derived fuel (RDF), have the potential to address both tourism sector concerns.

Under the Law of Renewable Energy (57-07), adopted in 2007, the Dominican Republic put in place a number of incentives to encourage renewable energy alternatives to fossil fuels, including a tax credit of up to 40 percent on the capital cost of renewable energy equipment for selfproducers, to be deducted from the owner's income tax in the 3 years after the equipment is purchased; tax exemptions (on renewable energy equipment import duties and sales tax, and on up to 10 years of income tax for income derived from the sale of renewable energy); reduction to a fixed 5 percent on the tax paid on foreign-financed interest payments; a generous feed-in tariff; preferential financing for community renewable energy projects with resources coming from the renewable energy fund; and ownership of potential carbon credits resulting from the project. These government incentives, coupled with high prices for fossil energy, make a number of clean energy technologies financially attractive in the Dominican Republic. For example, a preliminary study comparing biomass energy costs with fossil fuel energy costs estimated a net

	cost for biomass energy of USD 5/MMBTU, as compared to more than USD 19/MMBTU for Fuel Oil #6 and more than USD 25/ MMBTU for natural gas. These cost savings have been borne out in the limited domestic experience: In the earlier example, the Punta Cana Laundry Service saved USD 700,000 in the first year through reduced fuel costs alone. Actual cost savings were higher stemming from reduced maintenance costs and the value of carbon credit sales. Preliminary analysis of using solar hot water heaters and refuse-derived fuels to displace existing fossil energy sources suggests these technologies will also yield positive economic returns. However, so far, the tourism industry has not seen wide-spread adoption of distributed biomass or any other alternative energy solutions.

J Relevant National Policies strategies, plans and programmes and/or other mitigation action

J.1 Relevant National Policies	Ley 1-12 http://www.suprema.gov.do/PDF_2/novedades/ Novedad_Ley_1-12.pd CCDP Plan/ A journey to sustainable growth / Http://www.theredddesk.org/resources/reports/ a_journey_to_sustainable_growth_the_draft_clim ate_compatible_development_plan_of_t No. 601-08 Crea e integra el Consejo Nacional para el Cambio Climático y Desarrollo Limpio http://www.cne.gob.do/app/do/ marco_leyes.aspx Ley de Incentivo al Desarrollo de Fuentes Renovables de Energía No. 57-07 http://www.cne.gob.do/app/do/marco_leyes.aspx Ley para el Fortalecimiento de la Capacidad Recaudatoria del Estado para la Sostenibilidad Fiscal y el Desarrollo Sostenible (Artículo 16) http://www.dgii.gov.do/legislacion/leyesTributarias/ Documents/ley253-12.pdf
J.2 Link to other NAMAs	

K Attachments

K	Attachments	**Title Description**
K.1	Attachment description	
K.2	File	Browse...

L Support received

L.1 Outside the Registry	
L.2 Within the Registry	**Support provided SupportType Amount Comment Date**