Presidencia de la República Dominicana

Consejo Nacional para el Cambio Climático y el Mecanismo de Desarrollo Limpio

# Wastewater Treatment Update

## DOMINICAN REPUBLIC

**Federico A. Grullon**

**GMI Municipal Wastewater Subcommittee Meeting**
**Vancouver, Canada, 13 March 2013**

Global Methane Initiative

# Wastewater Treatment

- Treatment coverage

- There are about 56 municipal wastewater treatment plants in the country

- In  Santo Domingo exists 12 WWTPs, only 4 are operating inappropriately .

- From 13.8% collected, only 37%  are sent to treatment plants but are not treated appropriately.

- In Santiago city (2nd w/most population)  generates 4,426 lps; around 90% are collected but only 14% are sent to a treatment system

**Source**: Report of Status of Knowledge regarding Municipal Wastewater Treatment – Project IDRC-UNAM 1 05701-001

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# Wastewater Treatment

- Treatment coverage

- At national level, the treatment coverage is only 35%

- In the country, 65% of wastewater treatment plants are out of service

**Source**: Report of Status of Knowledge regarding Municipal Wastewater Treatment – Project IDRC-UNAM 1 05701-001

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# Wastewater Treatment


Location of WWTPs

In Santo Domingo only 4 plants are operating inefficiently

**Source**: Report of Status of Knowledge regarding Municipal Wastewater Treatment – Project IDRC-UNAM 1 05701-001

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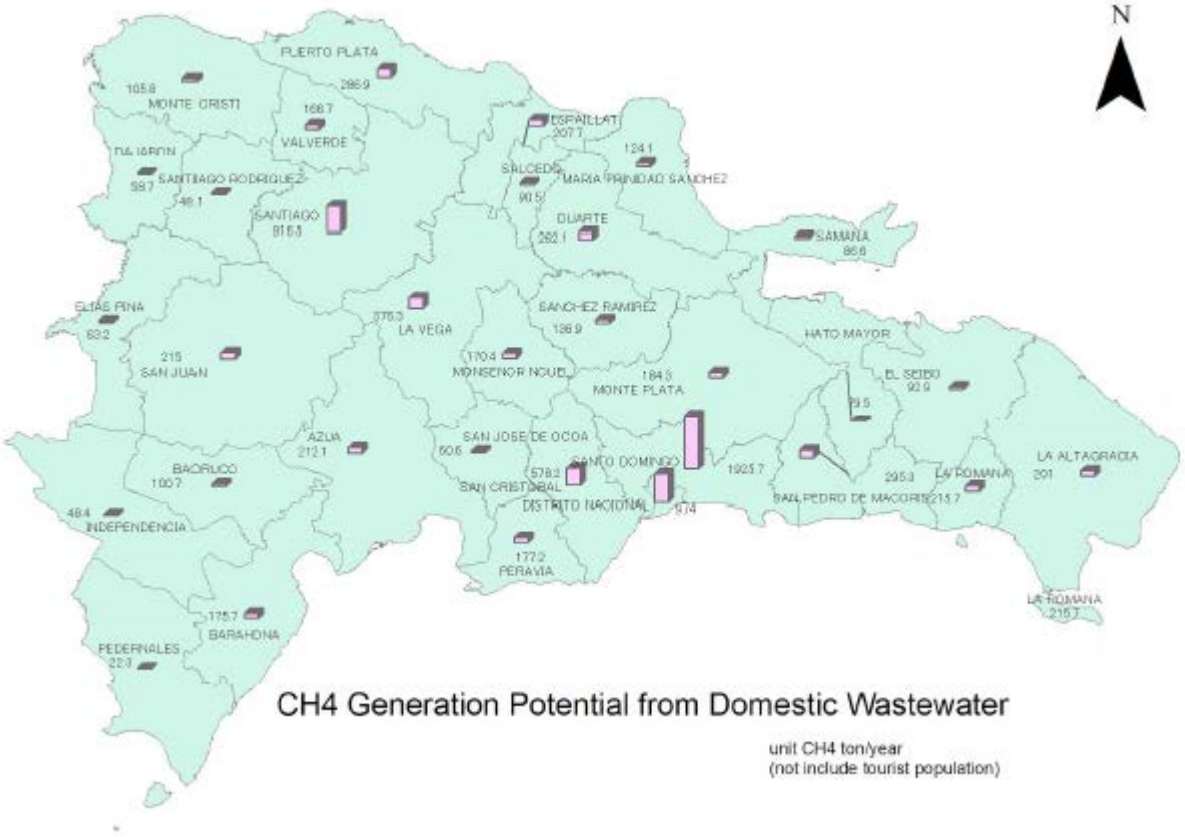
# Wastewater Treatment

Potential Methane Generation from Domestic Waste Water




Estimated CH4 Emission Reductions is **8,874 ton/y**

**or**

**186,354 ton CO2e per year**

Tourism population is not calculated.

**Source:** The Study for the Promotion of CDM Projects in the Dominican Republic – 2010 (JICA)

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# Wastewater Treatment

- Goals for future coverage expansion

- Recently, was finalized the 'Sanitary Sewer Master Plan of Santo Domingo' – by the 'Corporation of aqueducts and sewage systems of Santo Domingo - CAASD'.
- This plan pretends to solve the issue of the sanitary sewer (95% lack of an appropriate wastewater discharge service) and the wastewater treatment of the Gran Santo Domingo with a population of 2.3 million inhabitants. The long-term project 2013- 2040 requires an an investment of 612 million dollars
- In its first stage (2013-2020), will be needed an investment of USD 120 million.

**Source**: Diario Libre Newspaper – Dec 05. 2012

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# Wastewater Treatment

- Goals for future coverage expansion

- The Master Plan pretends to repair the existing WWTP (only for Satno Domingo) with an investment of  USD18.2 million.

- Also the construction of new WWTPs with an investment of USD15.5 million.

- It means, an increase of 25% of the coverage of wastewater treatment by 2020.

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# Wastewater Treatment

- Follow-up by ‘Corporation of aqueducts and sewage systems of  Santiago – CORAASAN’ to the ‘Sanitary Sewer Master Plan of Santiago city’ (prepared by JICA in 2002)

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# WASTEWATER PROJECT OPPORTUNITY
# RAFEY WASTEWATER TREATMENT PLANT
## SANTIAGO, DOMINICAN REPUBLIC
## CORAASAN

### OVERVIEW OF WASTEWATER PROJECT:

Rafey Wastewater Treatment Plant (WWTP) , located in Santiago, Dominican Republic, serves approximately 490,000 people and has designed and operating influent flow rates of 1.2 $m^3$/sec and 0.5 $m^3$/sec, respectively. The WWTP treats municipal wastewater and uses tertiary treatment.

The proposed project involves capturing the wastewater biogas, treating t (i.e., removing siloxanes and H2S), and generating electricity - 1 MW engine. The electricity will be used onsite. The project is expected to cost approximately $8.2 million (US$) with an expected payback of 15 years.

### EXPECTED BENEFITS

- Emissions reductions: 1,100 $MTCO_2E$ per year
- Learning opportunity for students in the area of renewable energy.

### TYPES OF COOPERATION SOUGHT

- Technical assistance
- Financial assistance

### FOR MORE INFORMATION

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# WASTEWATER PROJECT OPPORTUNITY
# RAFEY WASTEWATER TREATMENT PLANT
## SANTIAGO, DOMINICAN REPUBLIC
## CORAASAN

## OVERVIEW OF WASTEWATER PROJECT:

Tamboril Wastewater Treatment Plant (WWTP) , located in Santiago, Dominican Republic, serves approximately 37,250 people , designed and operating influent flow rates of 0.629 $m^3$/sec and 0.085 $m^3$/sec, respectively. The WWTP treats municipal wastewater and uses tertiary treatment.

The proposed project involves capturing the wastewater biogas, treating it (i.e., removing siloxanes and H2S),and generating electricity in a 750kW engine. The electricity will be used onsite.

### EXPECTED BENEFITS

- Emissions reductions: :825 $MMTCO_2E$ / year
- Learning opportunity for students in the area of renewable energy.

### TYPES OF COOPERATION SOUGHT

- Technical assistance
- Financial assistance

### FOR MORE INFORMATION

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# Wastewater Treatment

- Goals for future coverage expansion (projects in portfolio)

- 'Water and Sanitation Project in Tourist Areas'. The main goal in reducing the economic, social and environmental high costs caused by the improper wastewater and solid wastes handling in the Dominican Republic.

- (1 pilot project – province of San Juan de la Maguana) Decentralized Management Project of Potable/drinking Water and Sanitary Services . Aims to improve public access to potable/drinking water and sanitary services supported by the Spanish International Cooperation Agency (AECID for its acronym in Spanish) and it will be implemented by INAPA.

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**Source**: Report of Status of Knowledge regarding Municipal Wastewater Treatment – Project IDRC-UNAM 1 05701-001

# Methane Reduction, Recovery, and Use Initiatives

- Example of existing methane reduction efforts

In the country:

- 56 plants wastewater treatment:
- 19 plants use mechanical aeration
- 6 plants are operating efficiently
- 13 plants are operating inefficiently

**Source**: Report of Status of Knowledge regarding Municipal Wastewater Treatment – Project IDRC-UNAM 1 05701-001

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# Methane Reduction, Recovery, and Use Initiatives

- Example of recovery and use projects

- All treatment plants with *UASB reactor or combined* technologies are emitting methane to the atmosphere.

**Source**: Report of Status of Knowledge regarding Municipal Wastewater Treatment – Project IDRC-UNAM 1 05701-001

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# Barriers/Challenges to Methane Reduction, Recovery, and Use

- **Technical:**
- Lack of data on emissions generated within the wastewater sector
- Lack on expertise or awareness of recovery and use technologies and practices
- deficiency of the national energy system (long powers cuts), due to this, technicians prefer technologies using less equipment and less electricity.
- weak culture in the country's institutions related to wastewater treatment and maintenance of the works; it has caused a collapse of many of the systems

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# Barriers/Challenges to Methane Reduction, Recovery, and Use

- **Policy**:

- Lack of an appropriate institutional framework that promotes the implementation of policies and strategies for the development of projects.

- there is no national regulation for the design, construction and operation of sanitary works and installations.

- **Financial:**

- High costs of recovery and use technologies and lack of access to financing

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# Barriers/Challenges to Methane Reduction, Recovery, and Use

- Existing Incentives:

- Incentives under the Law 57-07 on Renewable Sources of Energy and its Special Regimes:

- **Import taxes Exemption (***this year was reduced from 75% to 40%***)**:

- **Equipments:** Power generator using biogas, digesters and scrubber equipment for the production of biogas from agricultural waste biomass even with their purifiers.

- Sell  electricity to the national grid (net metering system)

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# THANKS!

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