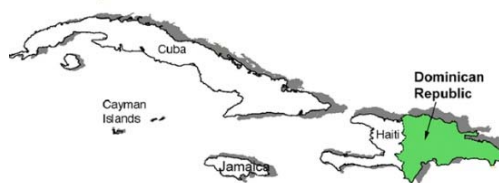


The 2014 International Training Workshop on Post-disaster Recovery  
National Science and Technology Center for Disaster Reduction, Taiwan

# Post Disaster Recovery Experience

## Enriquillo Lake Expansion

### Baoruco Province, Dominican Republic



**Gregorio Rosario Michel, MSc.**

**National Geological Survey,  
Ministry of Energy and Mining**

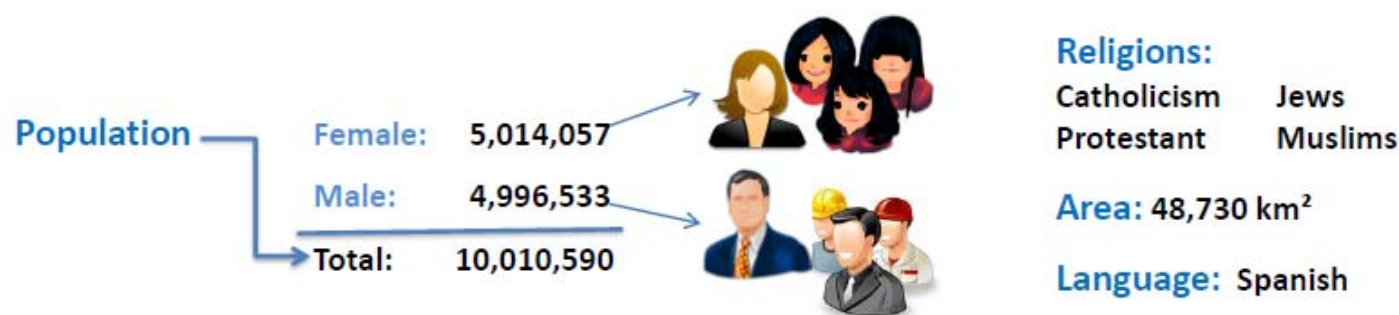


**Ministry of  
Energy and Mining**

# Agenda

- ☐ Dominican Republic: A quick view
- ☐ National Geological Survey
- ☐ Enriquillo Lake: General context
- ☐ Enriquillo Lake Expansion
- ☐ Post disaster recovery initiatives
- ☐ Ongoing Projects
- ☐ References

# Dominican Republic: A quick view



**Ethnic groups:**  
Mixed 73%,  
European 16%,  
African origin 11%.



**Location:** Caribbean Islands



**Government :** Democratic



# Dominican Republic: A quick view

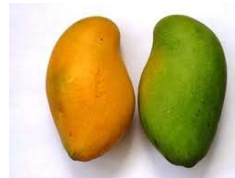
## Natural Resources



- Gold
- Silver
- Ferronickel
- Rock salt
- Gypsum
- Marble
- Amber,
- Bauxite
- Limestone
- Clay



## Agriculture



- Coffee
- Sugarcane
- Tobacco
- Bananas
- Cotton
- Cocoa
- Rice
- Beans
- Potatoes
- Corn



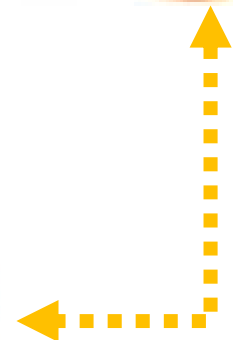
# National Geological Survey

- Created in 2010 by Law No. 50-10
- Decentralized government organization
- Part of the Ministry of Mining and Energy



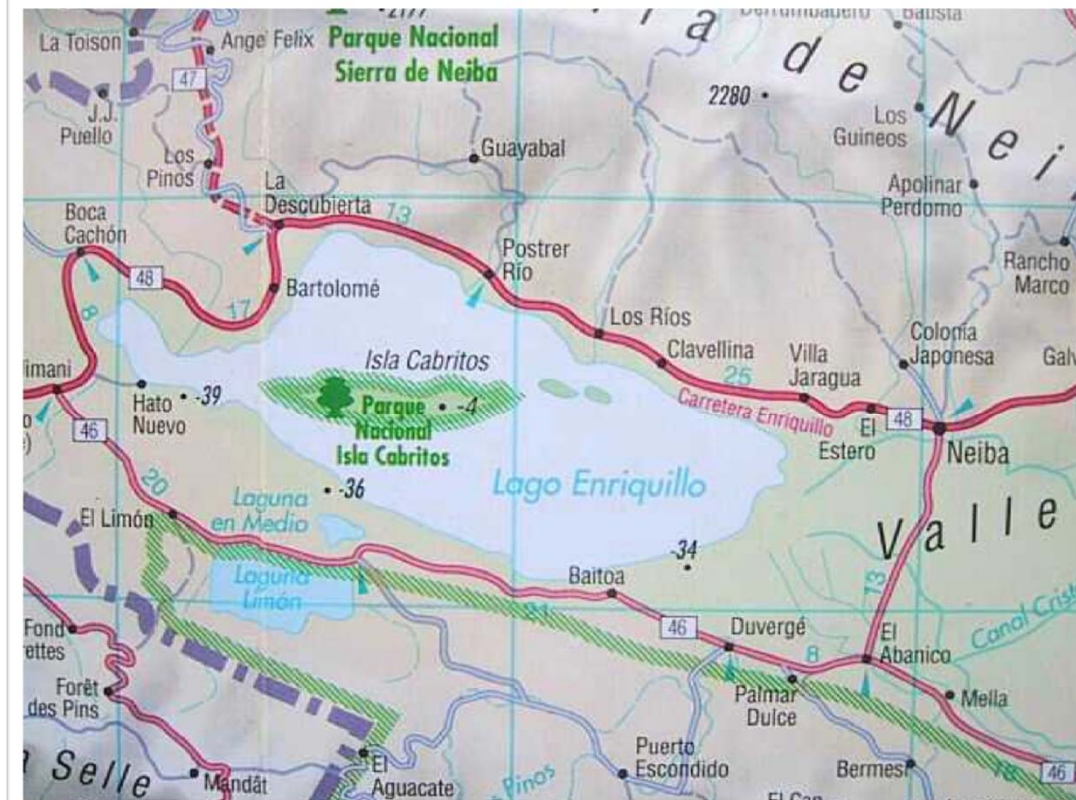
Santiago Muñoz Tapia  
**National Director**

**Team members**  
50 people



# Lake Enriquillo: General context

- The Enriquillo Lake is located at the South-Western part of the Dominican Republic.
- Average temperatura: 27 – 28° Celsius.
- 9 municipalities and 5 municipal districts.
- Surrounded by 122,000 inhabitants
- One of the poorest area of the DR.





# Lake Enriqueillo: General context

- The principal economic activities of the zone are agriculture and livestock.
- There are many reptiles and exotic birds.
- Some endangered species exist



# Lake Enriquillo: General context

➤ **Major disasters occurred at the Enriquillo Lake in the last decade**

➡ 2005 – Present. Enriquillo Lake Expansion

● 2012 Sandy Hurricane

● 2012 Issac Storm

● 2010 Haiti Earthquake

● 2007 Olga and Noel Storms

● 2004 Jimani Debris Flow

**Public infrastructure**  
**More than 10,000 hectares**  
**of agriculture production**

**79% reduction of the**  
**agriculture activities**  
**Schools, bridges,**  
**water supplies**

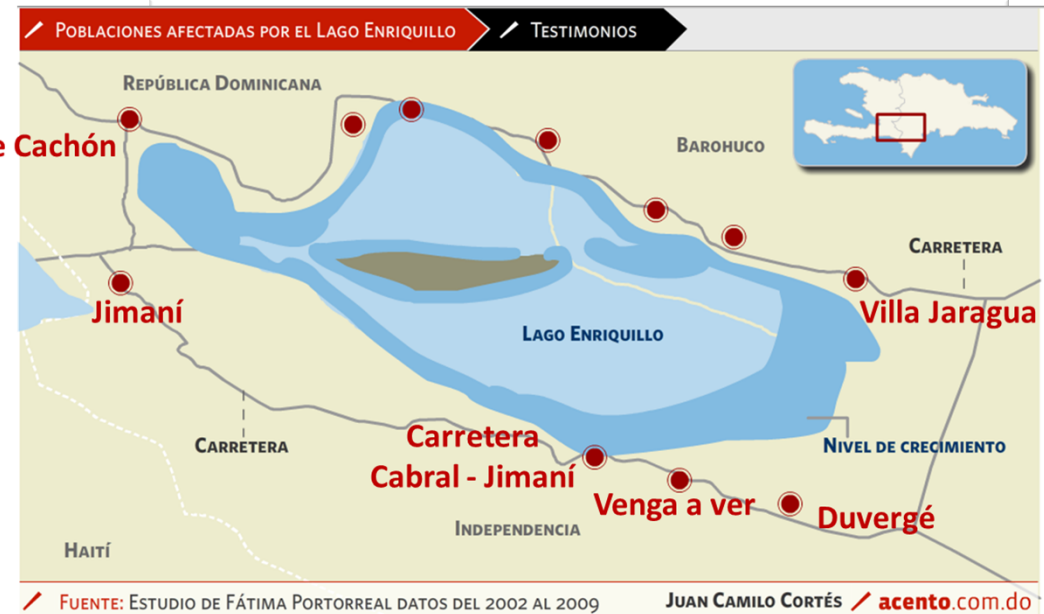
**2000 dead tolls**  
**5000 destroyed houses**  
**Environmental effects**



# Lake Enriquillo Expansion

➤ The Lake has been growing gradually:

- Flooding the productive land for agriculture, livestock and rural areas.
- Contaminating the aquifers.
- Interrupting the communication the binational communication road to Haiti.
- Affecting around 27,000 people.



# Lake Enriqueillo Expansion

- **Researchers point different causes of the Enriqueillo Lake expansion:**
  - Deforestation of the mountain area
  - Intrusion from other surface and groundwater sources
  - Agricultural activities
  - Accumulation of sediments
  - Excessive precipitation in the past years
  - Climate change

Possible causes  
Hypothesis



# Post disaster recovery initiatives

- Starts with the coordination and cooperation among local, NGOS and regional authorities:
  - Presidential Administrative Ministry
  - Ministry of Economy, Planning and Development
  - Special Fund for the Agriculture Development
  - United Nation Development Program
  - Other organizations and authorities

## Strategic Plan for the Recovery and Transition to Development



# Post disaster recovery initiatives

## ➤ The initial process towards the Recovery:

- Damage assessment
- Necessities identification
- Workshops with local authorities
- Institutional arrangement
- Consensus agreement
- Planning
- Strategic framework for the Recovery

**Strategic needs**

**Human capital needs**

**Improve basic services**

**Generation of livelihoods**

**Build capacity for governance  
and risk management**



# Post disaster recovery initiatives

## Boca de Cachon Project

- A presidential initiative to relocate affected people due to the Enriquillo Lake expansion
- Build 500 economic houses
- Establish the public infrastructure and services



Lic. Danilo Medina



Presidencia  
**República Dominicana**



**6 months**  
To build hopes



# Post disaster recovery initiatives

## Boca de Cachon Project

- Build several agricultural settlements to stimulate the economic activity
- Solidarity Bank
- Fishery, handicraft and livestock projects



Presidencia  
República Dominicana





# Post disaster recovery initiatives

## Boca de Cachon Project

- Design and construct the water system supply
- Design and construct the wastewater collection system
- Design and construct the wastewater treatment plant



Presidencia  
República Dominicana



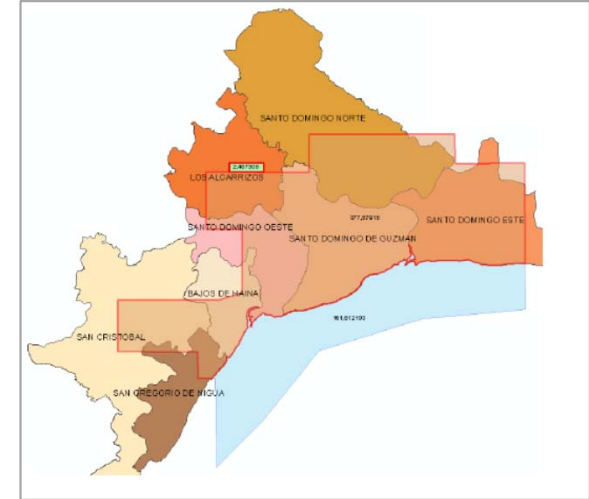
National Institute  
of Water and  
Sewer



# Ongoing Projects

## Seismic Microzonation

- To analyze the type of soil that exists within an area and their behavior due to an earthquake;
- Greater Santo Domingo and part of the San Cristobal Province
- To strengthen the capacities of national and local authorities, and contribute to build a culture of prevention, both in the construction sector and the general population.



Ministry of  
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Al servicio  
de las personas  
y las naciones



irai

Istituto di Ricerche sulle Attività Tettarie  
Consiglio Nazionale delle Ricerche



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- Report for the design and construction of the water supply, sewerage and wastewater treatment plant facilities for Boca de Cachon, Independence Province. INAPA, 2013.
- United Nation Development Program. Dominican Republic Office, 2014.
- Delanoy, Ramón. Modelling of the hydrological and geodynamic processes of the Enriquillo Lake. UASD, 2013.





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