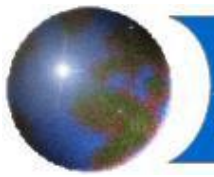


# Service and Research Opportunities through Peace Corps Response

Curt Holder

Department of Geography and Environmental Studies  
University of Colorado Colorado Springs



# What is Peace Corps Response?

- Established in December 1995 as Crisis Corps
- Three Volunteers sent to Antigua to rebuild homes damaged by Hurricane Luis.
- Provides short-term humanitarian service to countries worldwide





# Personal motivation for serving as PCRV

- RPCV to Guatemala (1988-1990)
- International experience
- Interest in food security
- Volunteerism
- PC Country Director retirement?





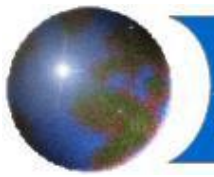


# Peace Corps Orientation and Assignment

My official assignment title:

Environmental Community  
Mobilization Specialist





# Geographic characteristics of El Salvador

- Area: 21,041 sq km (slightly smaller than Massachusetts)
- Population: 6,235,513 (July 2014 est.)
- Urban population: 64.8% of total population (2011)
- Mestizo 86.3%, White 12.7%, Amerindian languages 1% (2007)



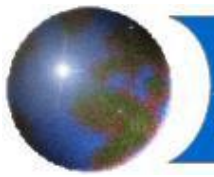




# 12-year civil war in El Salvador

- May 1979 – Jan 1992
- Over 75,000 died
- Over 1,050,000 displaced

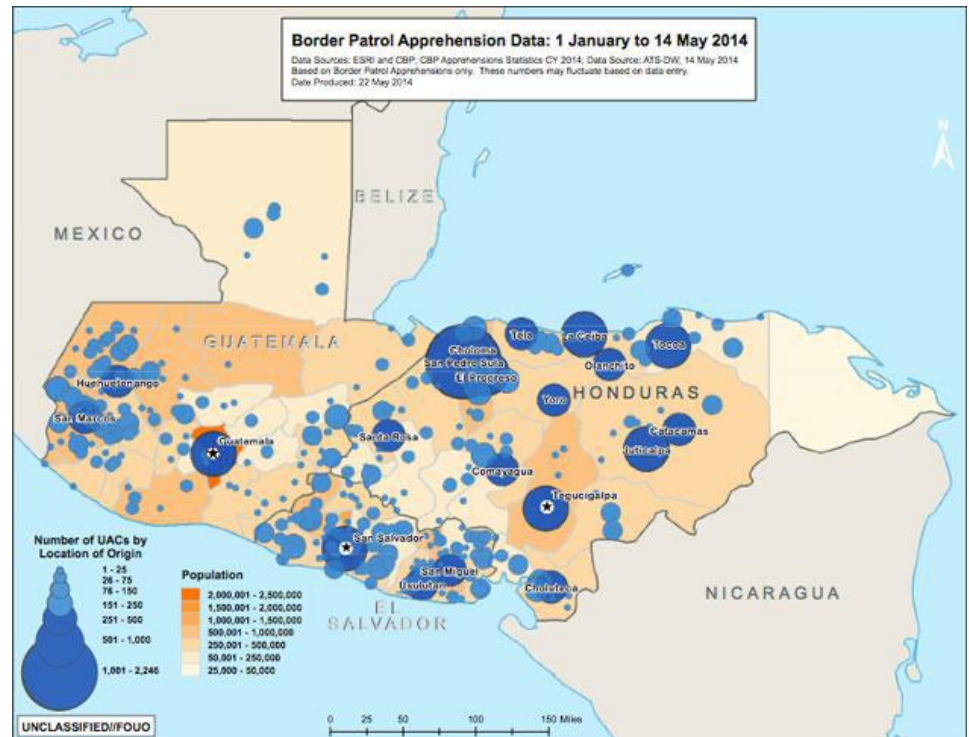
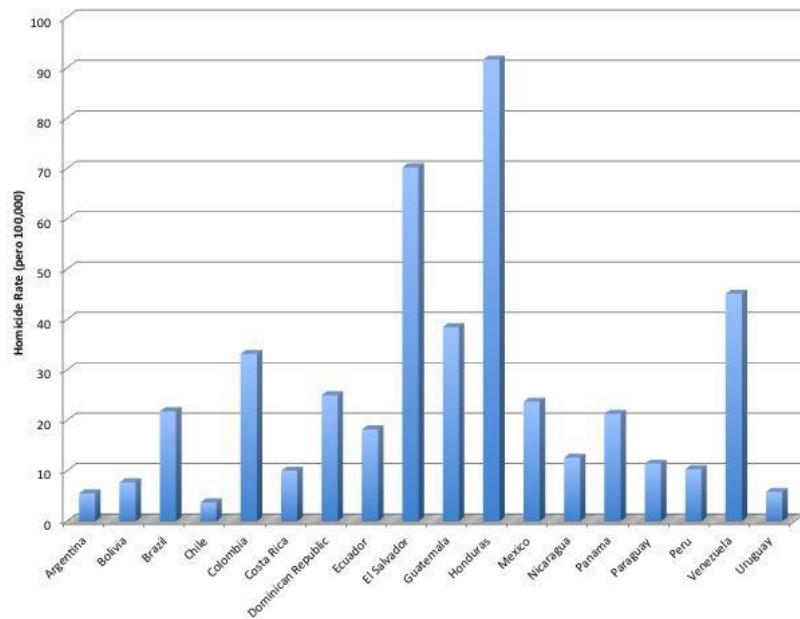




# Immigration to the United States

- Homicides in El Salvador in 2014: 3,914 or 11 per day
- In 2013: 2,492 homicides

Homicide Rates in Latin America





## Minor Growth

More children from Central America are being apprehended by the Border Patrol this fiscal year, though the pace has slowed in recent weeks.

**Unaccompanied minors caught along the U.S.-Mexico border,  
by country of origin**



\*Through the first nine months of the fiscal year. Note: Fiscal years end Sept. 30.

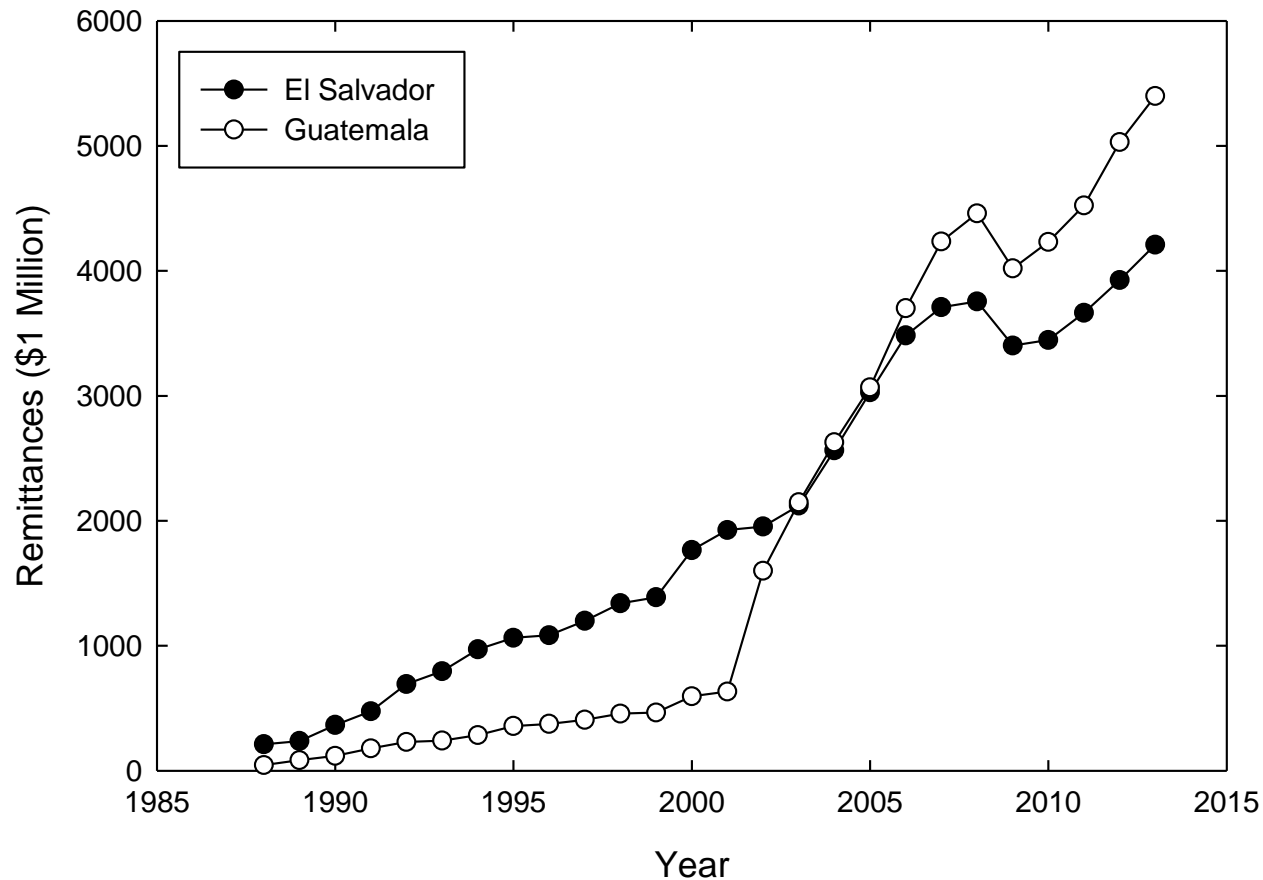
Source: Department of Homeland Security

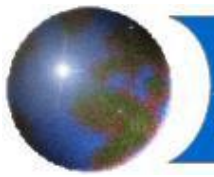
The Wall Street Journal



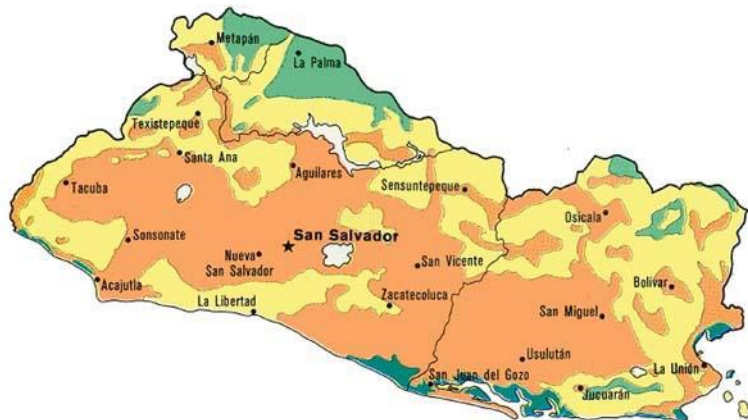


# Remittances from the United States to Guatemala and El Salvador





# Forest cover in El Salvador



## Vegetation and Land Use

- Cultivated area—coffee, cotton, sugarcane, cereals, and fiber crops
- Dense woodland—mainly broadleaf evergreen with some pine
- Mainly deciduous brush, grassland and pasture
- Mangrove swamp

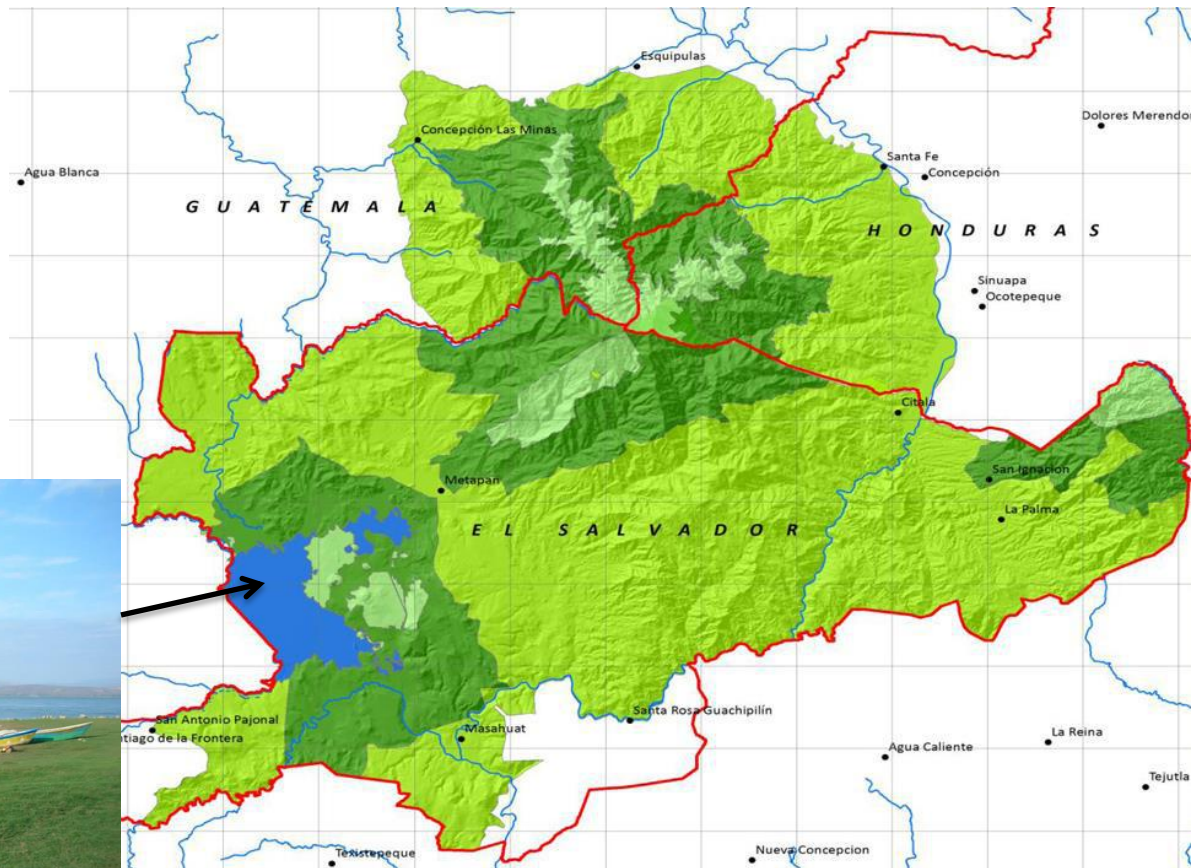
0 50 Kilometers  
0 50 Statute Miles

- Second most deforested country in Latin America
- Lost 85% of forests since 1960's
- Less than 6,000 hectares are primary forests



# Trifinio-Fraternidad Biosphere Reserve (El Salvador, Guatemala, and Honduras)

- Established in 2011
- The only tri-national biosphere reserve in Latin America
- 12 municipalities (8 in El Salvador; 2 in Guatemala; 2 in Honduras)



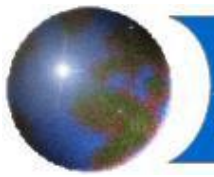




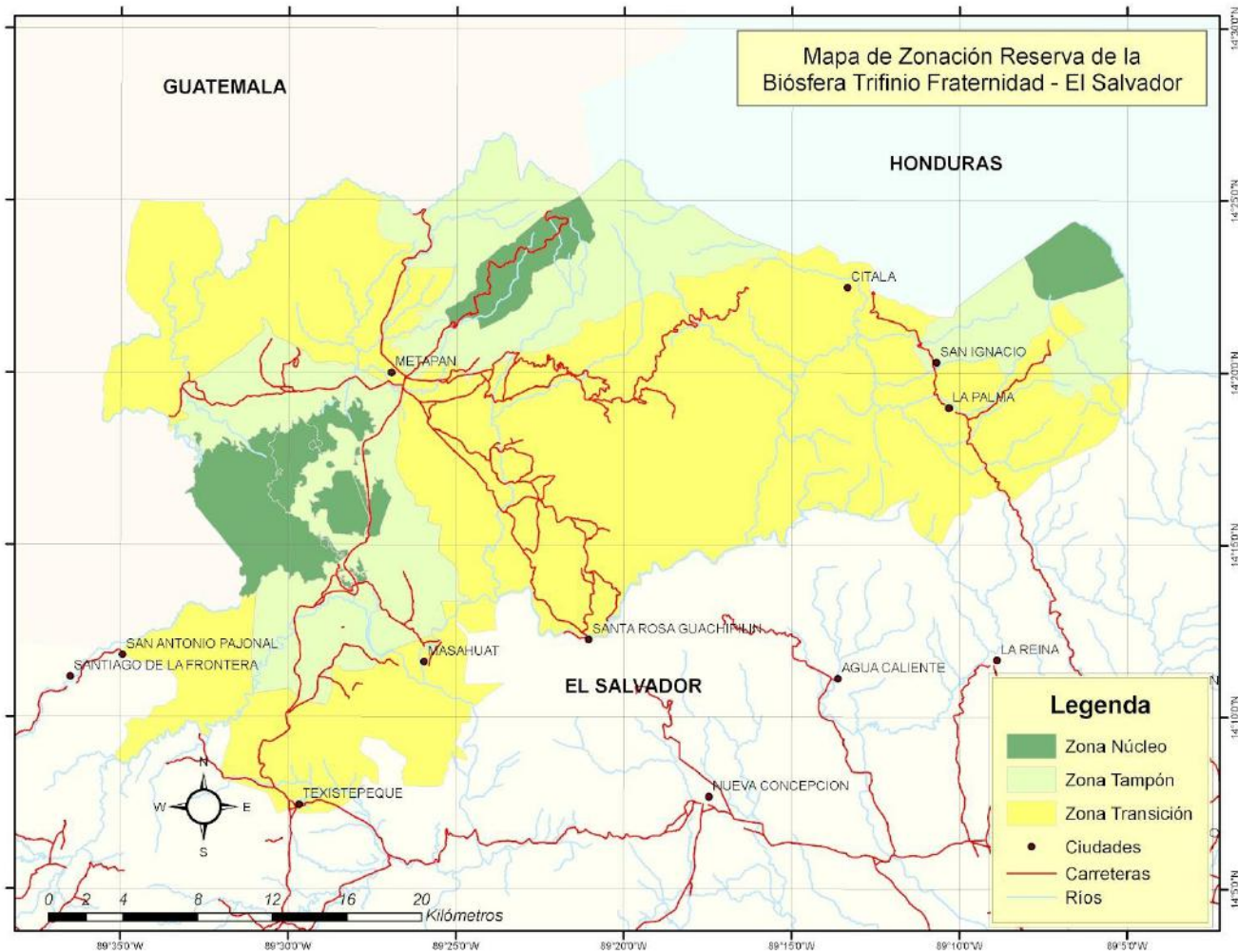
# Tropical dry forests

- Precipitation = 1050 mm
- 85% of precipitation occurs in rainy season from May to November
- Temperature = 27 – 32 C





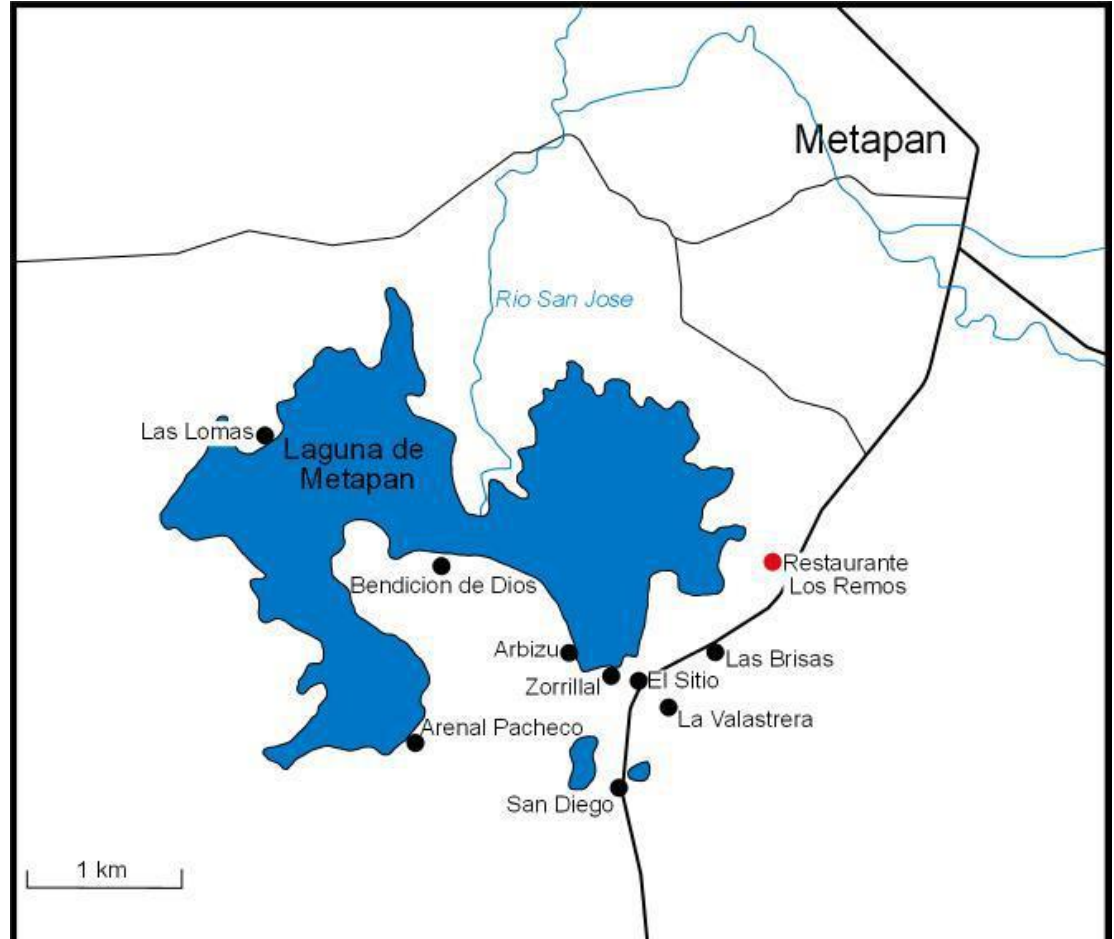
# Biosphere reserve zones in El Salvador







# Peace Corps Response Site (Bendición de Dios)







## Area of Laguna de Metapán

- Dry season = 14 sq km
- Rainy season = 16 sq km
- Laguna divides into two sections during the dry season







My house in  
El Salvador





# Historical Development of Bendición de Dios

- Est. after 1960 along shore
- 1998 Hurricane Mitch
- 2001 Habitat for Humanity, Mayor's office, Salvadoran Association for Rural Health
- 23 houses built initially







# Bendición de Dios

- 23 Habitat houses built in 2001
- 210 people in 52 households
- 42 households with running water
- 43 households with electricity







Laguna de Metapán is the drinking water source for 20% of households during the dry season







# Subsistence agriculture economy

- Maize, beans, and sorghum mostly for household consumption
- Only 8 households own agricultural land
- Land rent = \$100-\$125 per manzana (1.7 acres)







# Economic risks with subsistence agriculture

- Dry season from November to May
- Timing of planting
- Drought (canícula)
- In 2014 15-100% of maize crops lost compared to previous years

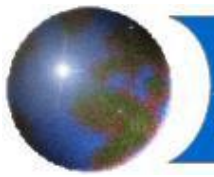






Fishing offsets risks to subsistence agriculture and supplements household income





Dry season fish camps along  
the shore





- Many people earn money as fish market vendors
- Fish markets: Metapán, Santa Ana, and Guatemala
- Snails





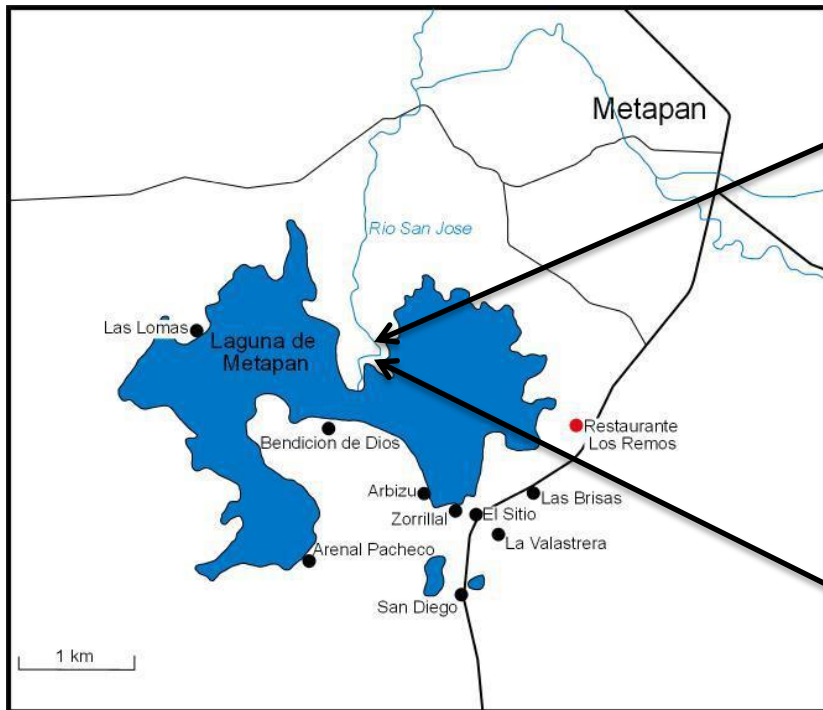


The nearest market  
is Metapán  
approximately 5 km





- Laguna de Metapan is an enclosed basin
- Rio San Jose discharges into the lake after passing through city of Metapan





- Holcim cement factory is a major employer in Metapán
- Holcim is a Swiss company
- USAID, Holcim, the Salvadoran government, and the local municipal government agreed to finance a sewage treatment plant
- USAID backed out at the last minute





- Water pollution promotes growth of invasive species (tilapia, snails, etc.)
- Water hyacinth (*Eichhornia crassipes* [Mart] Solms)
- Invasive plant originating in Brazil
- Spread worldwide











- Multiple fish kills each year with excess water hyacinth growth







- As the rainy season progresses, the laguna fills
- Two sections of laguna combined
- Water hyacinth moves from the east side of lake to the west side of lake





## Water hyacinth removal by communities groups













# Art, shoes, footprints and ecological footprints







English classes at elementary school and during the evening



## Future research projects and creative works

- Forest governance at multiple scales within biosphere reserve
- Environmental videos and ecological footprint exhibition
- Sustainability of fisheries of Laguna de Metapán
- Temporal changes and movement of water hyacinth
- Role of remittances in land use/land cover changes
- Ecohydrology of tropical dry forests





# Acknowledgments

- Valerie Brodar
- People of Bendición de Dios and the eight other communities surrounding Laguna de Metapán
- Numerous colleagues from Peace Corps, Plan Trifinio, MARN, CEPRODE, CEICOM, Alcaldia of Metapán, and the Benemérita Universidad Autónoma de Puebla (Mexico)





# Preguntas?

