Sustainability of Land Use In Puerto Rico (SLUPR)

Center for Sustainable Development Studies
School of Environmental Affairs
Universidad Metropolitana (UMET)
San Juan, Puerto Rico

PURPOSE

The development of a GIS scientific model with a land use sustainability index that will provide a tool to measure and monitor the impacts in Puerto Rico of the progression of the urban built environment on:

- **quality and availability of land**
- **ecosystems**
- **water**

for long term regional sustainability (Caribbean)

BACKGROUND

- **Debate on unsustainable land use pattern (urban sprawl)**
- **Scarcity of land:**
  - **8,874 Km²**
  - **4 million inhabitants**
  - **Population density of 429 individuals per Km²**
  - **Projected population growth rate per year of 0.6%**
- **Research study *Puerto Rico's Road to Smart Growth* revealed that the whole island could become a suburban megalopolis within 75 years.**

METHODOLOGY

The following steps will be followed to develop the model:

(1) Site characterization and assessment
(2) GIS data collection
(3) Analyses of analog maps, aerial photographs, and satellite data
(4) Data integration for sustainability index determination
(5) Analysis of outcomes
(6) Documentation of findings

MAIN VARIABLES

- **Data:** 1980-2004

- **Social:** Population
  Population Growth Rates
  Housing Units
  Urban Settlements
  Income

- **Environmental:** Land Use / Cover
  Area of Main Ecosystems
  Protected Areas/Total Area

- **Economic:** Number of Vehicles
  Journey to Work

EXPECTED RESULTS

1) **Development of a GIS model with a LU sustainability index (within a tropical island scenario) to measure land use patterns and tendencies that will apply to local municipalities, as well as other islands in the Greater Caribbean Region and other similar environments.**

2) **Development of *Puerto Rico's Annual State of Land Use for Sustainability* Report by UMET where municipalities will be ranked according to land use.**

3) **Expand EPA's National Center for Environmental Research portfolio of geographic regions, resources, systems and scientific approaches for further research.**