

**Client**

Ministry of the  
Environment and Natural  
Resources

Ing. Napoleón Leoni  
Coordinador General de  
los Préstamos Bilaterales  
y Multilaterales  
Dirección General  
Sectorial de Equipamiento  
Ambiental  
Ministerio del Ambiente y  
de los Recursos Naturales  
011-212-408-1642/1644

**Location**

Caracas, Venezuela

**Services**

- Environmental Impact
- Design
- Procurement

**Date**

1999 – 2005

**Key Personnel**

Douglas Langley, B.Sc.  
Project Sponsor  
Leo Sanchez, P.Eng.  
Project Manager  
Ing. Luis Arconada  
Project Director  
Hugh Tracy, P.Eng.  
Chief Engineer  
Dave Yaeger, P.Eng.  
Hydrology  
Marek Hanel, B.Eng.  
Technical  
Coordinator  
Kevin Kavanagh, M.Sc.  
Designer  
Jim Corbett  
Procurement

**Contract Value**

US \$20 Million

## Tuy River Sanitation Program, Venezuela

**Scope of Services**

The Tuy River watershed is located in north-central Venezuela, south of the City of Caracas. Its basin is the main water supply source for the City of Caracas. One of the Caracas raw water intakes is located downstream from the point of discharge of untreated municipal and industrial wastewater from the Towns of Ocumare del Tuy and Las Tejerias. The cost of water treatment for Caracas is affected by the quality of the source water.

**Project Description**

The \$28 million project included design and equipment procurement for sewage collection, pumping, and treatment systems for the towns of Ocumare del Tuy and Las Tejerias. The project included main wastewater collector sewers, pumping stations, forcemains, treatment plant, and discharge facilities for the treated effluent. The Ocumare del Tuy wastewater treatment plant has a rated capacity of 42,600 m<sup>3</sup>/day and the corresponding rated capacity of the Las Tejerias is 16,000 m<sup>3</sup>/day.

An issue that was addressed in the detail design of the plants was the dilute concentrations of BOD5 and TSS caused by Inflow/Infiltration problems in the sewer system as well as discharges of sewage into watercourses in Ocumare

**Results**

Design of the treatment plants is based on sequencing batch reactor technology, capable of efficiently treating the dilute waste in Ocumare del Tuy and the normal concentration wastewater in Las Tejerias. The plants were designed as modular to facilitate future expansion.

Delcan also arranged export credit financing and managed the equipment procurement.