Western Hemisphere
Information Exchange (WHIX) Program

Introduction

In June 2003, The Assistant Secretary of the Army for Installations and Environment initiated a project to develop the WHIX Program. The WHIX Program supports Defense Security Cooperation goals by promoting information exchange between the militaries of the Western Hemisphere in the areas of Installation management; Environment, Safety & Occupational Health; and Energy Management (IEE).

The WHIX Program further supports the goals of the U.S. Army Strategy for the Environment: http://www.asaie.army.mil/Public/ESOH/doc/ArmyEnvStrategy.pdf. The U.S. Army is working with the U.S. Southern Command to carry out this program.

The WHIX Program goals are:

- Facilitate DoD Security Cooperation through information exchange between the militaries of the United States and other Western Hemisphere countries in the IEE areas
- Leverage resources and inter-agency relationships that address key IEE strategic issues and requirements of common interest between the militaries of the United States and other Western Hemisphere countries
- Assist in identifying activities that promote sustainability in military IEE operations (e.g. R&D opportunities)

WHIX Program Products:

A key product of this initiative is a series of *"As Is" Profiles* on the countries in the Western Hemisphere as reference documents for the overall WHIX program have been generated. These documents describe the geography, demographics, economics, politics, national government agencies and country activities as they pertain to infrastructure, environment, safety and occupational health and energy, as well as the particular military IEE, government activities and international treaties and agreements that the country has signed. The "As Is" Profiles were developed to better understand the priorities in the region. The WHIX Program is developing a series of *Technical Papers* to research specific areas of interest of the Western Hemisphere.

WHIX Research & Development Projects:

Biomass Energy for Electricity Generation

In September 2006, the U.S. Army initiated a technology demonstration to evaluate the technical, operational, economic, and environmental feasibility of two 50kW biomass energy generation systems for military applications at a cavalry base. These systems generate electricity by using dry agricultural waste and other dry biomass feedstocks. The biogasifier systems will enable the military base to be independent from the grid, and meet all of its current electricity requirements. The demonstration ends in December

2006. The U.S. Army will share findings and lessons learned from this project with other agencies during 2007.

Constructed Wetlands for Wastewater Treatment

From September 2006 to September 2007, the U.S. Army is demonstrating the use of Constructed Wetlands (CW) to treat wastewater for water reuse. It will evaluate the technical, operational, economic, and environmental feasibility of CW for wastewater treatment at a military base. The CW has been engineered to treat an estimated 40,000 gallons of wastewater per day. The treated water is expected to have a variety of non-potable water uses such as tactical vehicle washing, fugitive dust control, real property maintenance, and irrigation purposes for agricultural crops. CWs are an alternative treatment technology that replicates the natural treating capability of natural wetlands and can treat a variety of wastewaters, such as domestic effluents, storm water runoff, combined sewer overflows, and landfill leachate. Additional testing will be carried out in 2007 after approximately one year growth period of CW plant life. The U.S. Army will facilitate information exchange on findings and lessons learned at the end of the project.

Mobile Light Water Purification Systems (LWP) powered by Solar Energy

From December 2006 to April 2007, the U.S. Army will demonstrate four Army LWP configurations using solar energy (thin film flexible photovoltaics) to power the systems in lieu of the traditional fossil fuel diesel generators. These LWP are modular systems that consist of water-feed pumps, storage tanks, pretreatment filters, and a reverse osmosis module. The systems will be able to treat water from various sources (including salt water) and yield between 40 and 1,000 gallons per day treated water, depending on the size and configuration of the water purification system. The demonstrations will test the solar-powered water purification systems at sites near the ocean, rivers, and lakes to test overall system efficiency, effectiveness, durability, and deployability. These demonstrations are intended to provide information and analysis in support of requirements for garrisons and military operations (e.g. disaster relief, decrease in logistical footprint). The U.S. Army will share lessons learned at the end of the projects.

Micro Hydro Systems for Electricity Generation

From August to October 2007, the U.S. Army will demonstrate two types of micro hydro turbines for power generation in isolated locations near rivers. The demonstrations will evaluate alternative sources of energy, such as micro hydro to supply alternative energy needs for military garrisons, base camps, and other operational missions (e.g. disaster relief operations). One system will have a 10kW configuration, and a second will consist of two 2kW systems. These demonstrations will be executed at two sites in a Western Hemisphere country. The U.S. Army will share lessons learned at the end of the project.

For more information, contact:
U.S. Army Lead: Carl Scott, Carl.Scott@hqda.army.mil, Tel 703-614-8464