



**USAID**  
FROM THE AMERICAN PEOPLE



# ENVIRONMENTAL REMEDIATION OF DIOXIN CONTAMINATION AT DANANG AIRPORT

JUNE 2012 – JUNE 2018 | IMPLEMENTERS: CDM SMITH, INC., TETRA TECH, INC., TERRATHERM, INC. | PLANNED BUDGET: \$94.8 MILLION

At the request of the Government of Vietnam (GVN), the U.S. Government agreed to complete the environmental remediation, or cleanup, of the Danang Airport due to high dioxin concentrations in soil and sediment remaining from the U.S.-Vietnam War. Approved by Vietnam's Prime Minister in 2011, USAID and the Vietnamese Ministry of National Defense (MND) jointly implement the Danang Airport Remediation Project, which aims to clean up the dioxin contamination and consequently eliminate the risk of dioxin exposure to the surrounding community while developing Vietnamese capacity for environmental assessment and remediation activities.

## ENVIRONMENTAL REMEDIATION PROCESS

In 2010, USAID completed an Environmental Assessment of the Danang Airport that estimated the volume of dioxin contaminated soil and sediment at the airport and evaluated multiple containment and remediation strategies. Thermal treatment was determined to be the most effective and scientifically proven technology for destroying dioxin, as well as having the lowest potential impact on human health and the environment given the specific conditions of the Danang Airport. The project was launched in August 2012.

The thermal treatment strategy involves three major steps: building an enclosed, above ground treatment structure; excavating and placing the dioxin-contaminated soil and sediment into the structure; and heating the contaminated soil and sediment to a high temperature (approximately 335°C) to destroy the dioxin. Following treatment, the soil and sediment is tested by both USAID and MND scientists to ensure it meets the approved GVN treatment goal. The treated material is then cooled, removed from the treatment structure and used as fill material on site to advance the Danang Airport's expansion plans.

In May 2015, successful treatment of approximately 45,000 cubic meters of dioxin-contaminated material was confirmed – the first of two phases of treatment. Another approximately 45,000 cubic meters of contaminated material will be treated in 2016-2017.

## MAINTAINING HEALTH AND SAFETY

All remediation activities occur entirely within the military portion of the Danang Airport. Measures are in place to ensure that contaminated soil, sediment, dust and water do not leave the project area. International safe work practices for hazardous waste sites are followed for all remediation activities, including worker monitoring and health and safety training. Stakeholder engagement and community outreach activities are also an integral part of the project.

*In the photo: The structure for thermal treatment at Danang Airport – equal to the size of a two-storey tall, American football field. (TetraTech, Inc).*