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CENTER FOR AMAZONIAN SCIENTIFIC INNOVATION

Large areas of intact rainforest still cover the Amazonian region of Madre de Dios, known as Peru's biodiversity capital. But the uncontrolled expansion of alluvial gold mining, often illegal, is affecting human and environmental health.

The expansion of alluvial gold mining has caused the deforestation of over 100,000 hectares of forest in Madre de Dios since the 1980s, while contaminating waterways with mercury, which impacts human and environmental health. The goal of the Center for Amazonian Scientific Innovation (CINCIA for its Spanish acronym) is to build scientific capacity in the Peruvian Amazon region of Madre de Dios to counteract growing environmental threats. CINCIA leverages alliances with U.S. and Peruvian institutions to develop transformative solutions that promote sustainable development, combat environmental destruction caused by alluvial gold mining, and improve human health in Madre de Dios.

HOW DOES THE ACTIVITY WORK?

CINCIA backs cutting-edge research programs to better understand the breadth and concentration of mercury pollution in Madre de Dios, test various reforestation methodologies and plant species, and improve geospatial analysis of deforested mining areas using drones. The Center works in partnership with the region's primary research institutions – the National Amazonian University of Madre de Dios and the Peruvian Amazon Research Institute, a public institute with a 35-year history of research in the Amazon. In addition, CINCIA is collaborating with researchers from over 15 domestic and international institutions and leveraging support from private sector partners including the geospatial mapping company Esri, and environmental NGOs Amazon Aid Foundation, and World Wildlife Fund.

RESULTS ACHIEVED

- CINCIA has designed, equipped and launched four new multi-year research programs in Madre de Dios in partnership with local institutions focused on: mercury pollution, reforestation, biochar application, and geospatial analysis, using drones and satellite imaging.

- SERNANP (National Parks Service): has adopted the CINCIA methodologies and protocols to firstly recover 5.5. hectares in the Tambopata National Reserve.

- The Education Regional Directorate in Madre de Dios modified the school curricula to incorporate information on fish consumption (which species to choose from and why).

- CINCIA established the first laboratory in Madre de Dios with the capacity to analyze environmental mercury. CINCIA staff is evaluating the temporal and spatial distribution of mercury in the region and the factors that influence its presence and distribution.

- CINCIA has launched the largest research study in the hemisphere examining methods for recovering and reforesting landscapes degraded by alluvial mining. The team established 42 hectares of experimental research plots, and is testing over 40 native species of plants for reforestation. The methodologies developed by CINCIA helped mobilize over $1,276,000 of public and private investment funds to support reforestation efforts.

- CINCIA established the first biochar research program in the Peruvian Amazon, which studies how this ultra-stable form of carbon, formed by the controlled combustion of organic residues, can be used to improve soil quality in highly degraded landscapes.

- Leveraging expertise from Wake Forest University's Unmanned Systems Lab, CINCIA established an advanced drone program in Peru, which uses three types of research drones to develop methods to improve detection of threats to forests and wetlands, understand changes to the landscape caused by mining, and assess the health of forests and agriculture. Research conducted by CINCIA and its partners shows gold mining is the main driver of deforestation in Madre de Dios, causing over 100,000 hectares of deforestation since the 1980s.

- CINCIA works with the Madre de Dios Regional Educational Office to promote environmental education in schools. More than 46,000 children are now receiving environmental education, including on how mercury threatens public health. Over 1,300 college students and professionals participated in short courses on reforestation and hydrobiological monitoring.

PROJECT INFORMATION

IMPLEMENTER: Wake Forest University

PROJECT DURATION: March 1, 2016 to May 28, 2021

USAID FUNDING: $4.6 million

LOCATION: Madre de Dios and Lima Regions

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