Strengthening climate resilient development in the Cumbaza watershed
Towards water, energy and food security in urban-rural landscapes.

Introduction
Rapid urbanization in the Peruvian Amazon, largely driven by migration and economic development, has increased pressure on forest resources, whose ecosystem services underpin water, energy and food security, essential for human wellbeing and the economic prosperity of the region.

Tarapoto, the main commercial and financial urban centre in the department of San Martin, and the third largest in the Peruvian Amazon, is a prime example of these dynamics.

The availability and quality of water resources for urban and agricultural consumption is already being affected by severe environmental degradation in the surrounding Cumbaza watershed, largely linked to unsustainable agricultural practices, infrastructure development and urban growth.

Climate change and climate extremes, such as prolonged droughts, increased flooding and extreme temperature fluctuations, will further multiply the risks for urban and rural populations and hinder economic development in the watershed.

Water-Energy-Food Nexus approach
In the context of growing natural resource demands and climate change pressures, the interplay between water, energy and food security with socio-ecological factors is becoming increasingly more significant. This demands a better understanding of the complex natural resource interdependencies between urban and economic sectors, bio-physical surroundings and ecosystem services, and resource governance infrastructure. A Water-Energy-Food (WEF) Nexus framework provides an integrated and multidisciplinary approach that can help identify competing resource trade-offs and risks which will need to be managed to guarantee climate resilient development.

Objectives
There are existing conservation and resource management efforts underway in the Cumbaza watershed, including a water PES mechanism with agricultural and urban water users that seeks to support upstream forest conservation initiatives. This project will support these ongoing initiatives by applying a WEF Nexus approach to:

1. Evaluate the interdependencies, trade-offs and risks in the use, availability and management of natural resources across sectors and actors in Tarapoto and the surrounding Cumbaza watershed under different land use and climate change scenarios;
2. Inform the elaboration and adoption of integrated resource management and climate-risk mitigation strategies, actions and measures at multiple sectors and scales (city, districts, province and watershed) to improve water, energy and food security;
3. Galvanize support and financial commitments for the extension of a water PES mechanism to finance climate resilient development activities;
4. Build capacity and promote understanding about the utility of the WEF Nexus concept for integrated resource management and climate resilient development.
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Project components, activities & outcomes:

This project has an 18-month timeframe (November 2016 – April 2018):

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**Activities**

1.1 Quantify and visualise energy, water and food nexus (resource supply and demand) across urban and rural sectors and actors in the watershed;
1.2 Identify and validate risks and interdependencies across sectors and actors in the watershed;
2.1 Elaborate and validate Nexus scenarios under different climate and land use projections;
2.2 Analyse future impacts and risks for water, energy and food security in the watershed
3.1 Participatory development of multi-sectoral responses (measures, actions, policies) for resource use efficiency and risk mitigation as part of a climate resilient development model;
3.2 Evaluate and compare climate resilient development model with BAU.
4.1 Cost-benefit analysis of the MRSEH under different climate and land-use projections;
4.2 Business plan for implementing PES mechanisms;
4.3 Public investment proposals

**Outcomes**

1.3 Improved evidence-base on the resource use interdependence and trade-offs between different urban-rural actors and sectors in the watershed.
2.3 Stakeholders understand the utility of WEF nexus approach and are aware about the existing nexus conflicts and future socio-ecological risks under BAU scenario.
3.3 Decision-makers integrate multi-sectoral and multi-scale risk mitigation actions and improved resource use management policies in urban-rural development and conservation plans.
4.4 Increased participation of resource users in the payment for water ecosystem services mechanism.

Project Partners:

This project is implemented by the Global Canopy Programme (GCP), in partnership with Centro de Desarrollo e Investigaciones de la Selva (CEDISA), Centro de Competencias del Agua (CCA), the Comité de Gestión de la Microcuenca del Cumbaza (CGMC).

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