

EXECUTIVE SUMMARY

ECUADOR

KARA SOLAR, DEPLOYING SOLAR CANOES IN THE AMAZON REGION (EC-T1577 - EC-G1016)

Kara Solar's innovation focuses on deploying solar-powered river transportation in Ecuador's Amazon region, addressing pressing environmental and social issues such as high transportation costs, deforestation, and the lack of clean energy for Indigenous communities. By developing circular business models, building local manufacturing capacity, and training indigenous technical teams, the project aims to provide sustainable, clean energy solutions that improve the livelihoods of Amazonian communities while contributing to Ecuador's climate change goals.

Indigenous communities in the Amazon currently rely on gasoline for transportation and electricity, which is both expensive and harmful to the environment. In remote areas like the Achuar territory, gasoline costs are significantly higher than in other parts of Ecuador, forcing communities to engage in unsustainable practices, such as deforestation, to fund fuel purchases. This reliance on gasoline also drives road construction, exacerbating deforestation and biodiversity loss. The Kara Solar project offers a cleaner alternative through solar-powered boats, reducing the need for fossil fuels, lowering transportation costs, and mitigating environmental damage.

The project is supported by a total budget of USD \$1.8 million, comprising a USD \$300,000 technical cooperation grant from IDB Lab, a USD \$600,000 Contingent Recovery Investment Grant (CRIG) funded by the "LAC Green Innovation Hub (GreenHub) 1.0 facility"¹ managed by IDB Lab with resources from the Clean Technology Fund (CTF) operation RG-O1700, and USD \$900,000 in counterpart funding.

A core component of the project involves strengthening Kara Solar's model by implementing pilot projects that demonstrate productive uses of solar energy, including in river transport, fish farming, agriculture, and telecommunications. These pilot projects will generate valuable insights and data that contribute to scaling solar energy solutions across the Amazon. The project plans to install 180 kW of solar capacity, directly benefiting 113 households and generating lifetime energy savings of 345 MWh. A digital platform will also be developed to track the use of solar energy in transport and other productive applications and provide maintenance services.

The project also focuses on training 500 Indigenous technicians, of whom 33% will be women, to install, maintain, and operate solar energy systems. This initiative will create 150 skilled jobs, ensuring the sustainability of solar infrastructure in the region. This workforce development not only fosters economic wellbeing but also promotes gender equality by empowering women in technical roles traditionally dominated by men.

In addition, the project includes the strengthening of a spin-off company, Motores Amazonas, which will design, manufacture, and commercialize solar-powered river transport equipment tailored for the unique conditions of the Amazon. The company will produce electric motors, batteries, and photovoltaic systems. Motores Amazonas will offer its products for sale or lease, making solar-powered transportation more accessible to local governments, Indigenous organizations, and businesses in sectors like sustainable tourism and agriculture. These models will have both take-back and maintenance services to guarantee the environmental sustainability of the operation. The company aims to manufacture and deploy at least 90 solar-powered. This will result in the avoidance of 430 tons of CO₂ emissions by replacing gasoline-powered transport.

This project is consistent with the IDB Group Amazonia Forever Program and is aligned with the pillars of: (i) combating deforestation; (ii) fostering bioeconomy; (iii) people; and (iv) sustainable

¹ GreenHub is fully financed by CIF/CTF under the approved Regional Program: DPSP III: IDB Lab/CTF Climate Finance Program for Industry, MSMEs and Households in LAC.

infrastructure; by creating a sustainable and circular solution with solar energy provision for Amazonian communities, avoiding the impacts developing centralized electricity infrastructure and gasoline imports for transport while creating quality jobs and opportunities for local indigenous populations, contributing to long-term environmental sustainability and social development.