Fondo Multilateral de Inversiones
Miembro del Grupo BID

# REPORTE DE ESTADO DEL PROYECTO (FINAL)

JULIO 2018 - DICIEMBRE 2018

## SECCIÓN 1: SÍNTESIS DEL PROYECTO

**NOMBRE DEL PROYECTO:** Kara Solar: Transporte Fluvial en la Amazonia Ecuatoriana usando paneles solares

Nro. Proyecto: EC-T1375 - Proyecto No.: ATN/ME-16175-EC

**Propósito:** The Project will have a systemic impact by establishing a new community solar river transport system. Compared to the status quo, which is a growing presence of polluting and expensive peque-peque family canoes, the Kara Solar solar-river transport system reduces costs and pollution, including CO2 emissions, and increases opportunities for isolated Amazonian communities.

| País Administrador | País Beneficiario |
|---|---|
| ECUADOR | ECUADOR |

**Agencia Ejecutora:** Fundación Asociación Latinoamericana para el Desarrollo Alternativo

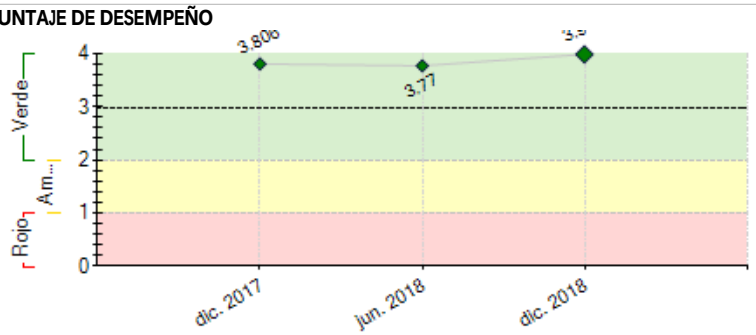
**Líder equipo de diseño:** PAULA AUERBACH
**Líder equipo de supervisión:** PAULA AUERBACH

**CICLO DEL PROYECTO**


**RECURSOS**

| | Aprobado | Cancelado | Desembolsado |
|---|---|---|---|
| **FOMIN** | $150,000.00 | $0.00 | $150,000.00 |
| **Contrapartida** | $117,000.00 | $0.00 | $124,304.92 |

**PUNTAJE DE DESEMPEÑO**




----- Promedio desempeño FOMIN

## SECCIÓN 2: RESULTADOS Y LOGROS

**Desempeño del proyecto una vez terminado**

The main result achieved by this project is the establishment of the new community solar river transport system consisting of alternative energy infrastructure and community enterprise structures. On the infrastructure side, the Kara Solar transport system is made up of two boats measuring 16 and 14 meters and a 12kW onshore photovoltaic microgrid. On the enterprise side, the system is composed of initial governance, management, and economic models.

Main activities achieved: 1. Design and construction of the solar boats and the solar center, tests and technical analysis of the infrastructure and technology, and the development of a legalizacion and registration process. 2. Consultancies to build community entrepreneurship, create business and replicability plans, and elaboration of the statute and bylaws of the operation of the community enterprise. 3. design and execution of the communications strategy, audio-visual production, academic investigation, and promotional events.

Products developed: 1. Two boats, a community solar center, technical knowhow for each element of the infrastructure, and legalizacion and registration agreements with local authorities, 2. Business plan, operations plan, and draft bylaws for the community enterprise. 3. successful communications strategy, widely shared communications material, alliances with USFQ, University of Lund, and TUNA School, and participation in promotional events with key audiences.

The central risk and obstacle of the project has been the performance of the infrastructure in the difficult Amazonian conditions. The propulsion system of the prototype boat experienced repeated technical failures. To mitigate this risk, we have studied the performance of the technological components and made

adjustments and adaptations. The design of the second boat takes into account the lessons learned from the first boat, principally related to the propulsion system. We will continue to closely monitor this area of the project with a dedicated R&D program.

A second major risk and obstacle is funding to continue to provide much needed improvements to the infrastructure and accompaniment of the implementation of the transport system. To overcome this, Kara Solar has built and extensive network of allies and funders, and will be launching a fundraising campaign in October, 2018.

**Comentarios del líder de Equipo de Supervisión**

The project was successful at the establishment of the new community solar river transport system with two solar-powered boats. The community enterprise will need coaching and mentoring to achieve a sustainable governance and successful functioning

**Evaluación final**

No se realizó la evaluación final al Proyecto

**Comentarios del líder de Equipo de Supervisión**

De acuerdo con los comentarios del evaluador

Evaluación final http://mif.iadb.org/file.aspx?DOCNUM=EZSHARE-1762141163-2

## SECCIÓN 3: INDICADORES

| | | Indicadores | Línea de base | Planificado | Logrado | Porcentaje |
|---|---|---|---|---|---|---|
| **Fin:** Design and construct a solar-powered river transportation system and create a pilot community enterprise to manage and govern the transportation system in Achuar territory, in the Ecuadorian Amazon, and prepare the scaling of the project across the Amazon basin | I.1 | Number of markets or sectors that arise with support from the FOMIN (a new community solar river transport system) | 0 | 1 | 1 | 0 % |
| | I.2 | Number of people with improved living conditions (men and women with improved access to clean transportation) | 0 | 1021 | 951 | 0 % |
| | I.3 | Tons of CO2 in GHG emissions reductions (greenhouse gasses reduced through the solar-powered river transport system) | 0 | 5 | 7.37 | 0 % |
| **Propósito:** The Project will have a systemic impact by establishing a new community solar river transport system. Compared to the status quo, which is a growing presence of polluting and expensive peque-peque family canoes, the Kara Solar solar-river transport system reduces costs and pollution, including CO2 emissions, and increases opportunities for isolated Amazonian communities.<br><br>**Clasificación:** Muy Satisfactorio | R.1 | A new sustainable community enterprise to effectively manage the solar infrastructure to the benefit of the local communities | | | Si | 0 % |
| | R.2 | A new solar micro-grid installed in an indigenous community | | | Si | 0 % |
| **Componente 1:** Design and construction of the solar-powered river transport system<br><br>**Peso:** 33%<br><br>**Clasificación:** Muy Satisfactorio | **C1.I1** | Number of innovations adopted that benefit people in the communities (solar river transportation, solar microgrid) | 0 | 2 | 2 | 0 % |
| **Componente 2:** Creation of a pilot community enterprise to manage and govern the transportation system<br><br>**Peso:** 33%<br><br>**Clasificación:** Muy Satisfactorio | **C2.I1** | Number of enterprises active at year end from their participation in a FOMIN Project | 0 | 1 | 2 | 0 % |
| | **C2.I2** | Net number of new jobs created by solar transport enterprise | 0 | 6 | 6 | 0 % |
| | **C2.I3** | Number of innovations (new practices or technologies) developed that benefit companies (multi-actor management structure; multi-level governance structure; adaptive management, gender focus) | 0 | 4 | 4 | 0 % |
| **Componente 3:** Knowledge management and regional integration<br><br>**Peso:** 34%<br><br>**Clasificación:** Muy Satisfactorio | **C3.I1** | Number of people that gain access to knowledge transfer products and/or activities | 0 | 1000 | 1000 | 0 % |
| | **C3.I2** | Number of alliances committed | 0 | 3 | 3 | 0 % |

| Hitos | Planificado | Fecha Vencimiento | Logrado | Fecha en que se logró | Estado |
|---|---|---|---|---|---|

**FACTORES CRÍTICOS QUE HAN AFECTADO EL DESEMPEÑO**
***[No se reportaron factores para este período]***

## SECCIÓN 4: RIESGOS

**RIESGOS CRÍTICOS GESTIONADOS DURANTE LA IMPLEMENTACIÓN**

**1.** Political conflict among Achuar Nationality of Ecuador (NAE)
**Nivel:** Media **Responsable:** Coordinador del proyecto **Estado:** Vigente
**Comentarios:** This risk remains in effect. We have observed increasing tensions among various Achuar factions. A group that is opposed to the current NAE leadership has been organizing an assembly in which they will analyze the situation of the current leadership.

**2.** Local communities' members might fail to resolve technical issues related to the solar system or boat's functioning due to the innovative technology. This could potentially pause the activities of the community enterprise.
**Nivel:** Baja **Responsable:** Coordinador del proyecto **Estado:** Vigente
**Comentarios:** This risk remains in effect because the technological challenges on implementing this type of project in the Amazon continue to present the largest obstacle to the success of Kara Solar

**3.** Limited local capacities to manage the community enterprise.
**Nivel:** Baja **Responsable:** Coordinador del proyecto **Estado:** Vigente
**Comentarios:** This risk remains in effect because the local capacity building is not complete and will require further efforts to achieve Kara Solar's goals.

**4.** Navigability of the Amazonian rivers could change. This could impact the route assign to the boat, not allowing to serve some the communities identified.
**Nivel:** Baja **Responsable:** Coordinador del proyecto **Estado:** Vigente
**Comentarios:** Though unlikely, this risk remains in effect and should be monitored and studied in order to determine long term navigability trends.

**5.** Lack of sufficient demand for this solar-powered transport system.
**Nivel:** Baja **Responsable:** Coordinador del proyecto **Estado:** Vigente
**Comentarios:** This risk remains in effect because, due to technical difficulties and the resulting limitations of operational consistency, Kara Solar has not yet proven that there is strong local demand.

**6.** The transportation systems technological components partially or completely fail due to harsh Amazonian conditions.
**Nivel:** Baja **Responsable:** Coordinador del proyecto **Estado:** Vigente
**Comentarios:** This risk remains in effect because Kara Solar has not yet demonstrated that the technology utilized can consistently operate in the Amazon.

**NIVEL DE RIESGO DEL PROYECTO:** Baja **NÚMERO TOTAL DE RIESGOS:** 11 **RIESGOS VIGENTES:** 7 **RIESGOS NO VIGENTES:** 4 **RIESGOS MITIGADOS:** 0

## SECCIÓN 5: SOSTENIBILIDAD

**Probabilidad de que exista sostenibilidad después de terminado el proyecto:** MP - Muy Probable
Kara Solar has been created as a Foundation to continue to support this iniciative.https://karasolar.com/

**FACTORES CRÍTICOS QUE PUEDEN AFECTAR LA SOSTENIBILIDAD DEL PROYECTO**

*[No se reportaron factores para este período]*

**Acciones implementadas relativas a la sostenibilidad:**

Technology area:
An R&D program is being established including Fundación Kara Solar, USFQ, Torqueedo and electronics experts
The motor on the second boat already incorporates technological innovations, making it more appropriate to Amazon conditions
A detailed sustainability and replicability report (for all áreas of sustainability)

Sociocultural area:
Sustained technical support (consultancy) to build community enterprise aspects: including institutions, management and governance capacities, and the economic model
Operation manual and enterprise by-laws established
Local boat operation team selected, trained and in place

Financial:
Community enterprise aims for self-sustaining model through locally generated revenues and taking advantage of local resources and staff to lower operation costs.
Alliance building underway to secure financial support through 2019 (Fundación Aliados; Amazon Frontlines; Cuencas Sagradas)

Environmental:
Goal established to develop a waste and pollution management system

Plan de Sostenibilidad

## SECCIÓN 6: CONOCIMIENTO

| Lecciones Aprendidas | Relativo a | Autor |
|---|---|---|
| 1. A long-lasting partnership between the communities and the Kara Solar technical team<br>A key sustainability platform of the initiative has been to build a strong, transparent and long-term partnership with the communities. Working with them not as beneficiaries, but as co-creators of Kara Solar. Constantly strengthening that role with best practices methodologies, the local leaders of Kara Solar have become an integral part in the identification and implementation of creative solutions. As co-owners of the project, they feel as responsible for the successes and challenges, as the technical team does. This has been fostered by building shared values and a vision for positive social change for Kara Solar in the short, medium and long term. | Sustainability | Utne, Oliver |
| 2. Strengthening the governance system by decentralizing the distribution of infrastructure and linking to other complementary initiatives.<br>As a project that incorporates several communities, it was key to decentralize the location of infrastructure establishment (not having it all in one community). This way, the creation of unbalanced power centers is avoided, more local Kara Solar advocates join the effort, regional territorial integration and coordination is encouraged, and connectivity with other forms of multi-modal transport and initiatives strengthened. | Implementation | Utne, Oliver |
| 3. Technological innovations in the Amazon: The functionality of electrical propulsion technologies in Amazonian conditions is extremely complicated<br>Due to climatic conditions such as humidity, heat, the presence of obstacles in the water; and difficulties to access Achuar territory, it was particularly challenging and expensive for the Kara Solar team to introduce and test new propulsion technological innovations with efficiency.<br>To ensure that the technological innovations work in the best way, it is important to have strong, cost effective, prototyping protocols. As well as a cost-effective spaces to create, adjust and adapt the designs and the most vulnerable aspects of the solar boats. | Sustainability | Utne, Oliver |

**Indique cuáles son los principales productos, dónde se encuentran y cómo podrían aplicarse o "compartirse" con otras entidades o proyectos similares.**

No hay productos de conocimiento especificos

**Productos principales del proyecto**

*[No se encontraron productos relacionados]*