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MULTILATERAL INVESTMENT FUND

ECUADOR

**KARA SOLAR: SOLAR-POWERED RIVER TRANSPORTATION IN ACHUAR
TERRITORY**

(EC-T1375)

DONORS MEMORANDUM

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CONTENTS

PROJECT INFORMATION

I.	The Problem	1
A.	Problem Description	1
II.	The Innovation Proposal	2
A.	Project Description.....	2
B.	Project Results, Measurement, Monitoring and Evaluation	5
III.	Alignment with IDB Group, Scalability, and Risks	6
A.	Alignment with IDB Group	6
B.	Scalability	7
C.	Project and Institutional Risks	7
IV.	Instrument and Budget Proposal	8
V.	Executing Agency (EA) and Implementation Structure.....	9
A.	Executing Agency Description	9
B.	Implementation Structure and Mechanism	10
VI.	Compliance with Milestones and Special Fiduciary Arrangements	10

Project Summary
ECUADOR
KARA SOLAR: SOLAR-POWERED RIVER TRANSPORTATION
IN ACHUAR TERRITORY - (EC-T1375)

Lack of access to transportation in the Amazon limits school attendance and visits to health clinics, keeps communities disconnected from one another, and hinders the development of economically productive activities like the interchange of agricultural goods and tourism. Existing solutions do not address this problem adequately; gasoline and diesel for boats are expensive and contaminating, and roads cause deforestation and bring cultural degradation. The proposed intervention seeks to: i) design, construct, and implement a solar-powered river transportation system consisting of two boats and one recharge station, which doubles as a community-scale micro-grid; ii) create a community enterprise to operate the system; and iii) implement a knowledge management system along with a regional integration plan that will position the project for scale-up across the Amazon basin (the "Project").

The first component of the Project is the design and construction of the solar-powered river transportation system. This component combines naval and electrical engineering, industrial design, and the real-life experiences of the Achuar community members to create innovative technical designs adapted to the unique conditions of the Amazon. The second component is the creation of a pilot community enterprise to operate the solar-powered transportation system. This will be accomplished through technical and administrative training, the creation of local management and governance structures, and the implementation of a business plan that can contribute to long-term financial viability of the system. The third component encompasses the Project's knowledge management and regional integration. Activities in this component will aim to scale up to new regions and will include the generation of key information through academic studies, the development and implementation of a multi-platform communications plan, the building of strategic alliances, and the analysis of funding and financial models.

While the solar-powered transportation system is a unique and notable achievement, the central innovation is putting renewable energy at the service of indigenous territorial management by creating a sustainable community enterprise. The implementation of this Project will result in two solar-powered boats and one solar recharge station serving nine Achuar communities, a community enterprise created to improve access to basic services, and regional integration activities that will position the Project for scaling.

The Project is aligned with the following IDBG strategies: (i) Update to the Institutional Strategy 2016-2019 (UIS) in which Climate Change and Environmental Sustainability is a cross-cutting issue; (ii) IDB Climate Change Sector Framework Document: countering climate change impacts that worsen the region's already low level of productivity and innovation; (iii) Renewed Vision for the IDB Group Private Sector Merge-Out: private sector to take a leading role in carbon reduction efforts, and the creation of new business opportunities that contribute to sustainable development; (iv) IDB Biodiversity and Ecosystem Services Program: promotion of private sector innovation for protection of ecosystems; and (v) Ecuador IDB Country Strategy: promote initiatives to encourage adaptation, mitigation of greenhouse gases¹, and the NSG windows will support projects to develop alternative energy sources².

¹ Paragraph 3.43 on Climate Change and Environmental Sustainability, Ecuador IDB Country Strategy 2012-2017

² Paragraph 3.6 on Energy, Ecuador IDB Country Strategy 2012-2017

ANNEXES

ANNEX I	Results Matrix
ANNEX II	Budget Summary

APPENDICES

Draft Resolution

**AVAILABLE IN THE TECHNICAL DOCUMENTS SECTION OF MIF PROJECT INFORMATION
SYSTEM**

ANNEX III	Detailed Budget
ANNEX IV	Diagnostic of Needs of the Executing Agency (DNA) [includes Integrity Due Diligence Analysis]
ANNEX V	Reporting Requirements and Compliance with Milestones and Fiduciary Arrangements
ANNEX VI	Procurement and Contracting Plan

ACRONYMS AND ABBREVIATIONS

ALDEA	Fundación Asociación Latinoamericano para el Desarrollo Alternativo
COICA	Coordination of Indigenous Organizations of the Amazon Basin
CONAIE	Confederation of Indigenous Nationalities of Ecuador
CONFENIAE	Confederation of Nationalities to the Ecuadorian Amazon
DNA	Diagnostic of Executing Agency Needs
IDB	Inter-American Development Bank
IDBG	Inter-American Development Bank Group
IIC	Inter-American Investment Corporation
INEC	National Institute of Statistics and Census (in Spanish INEC stands for Instituto Nacional de Estadísticas y Censos)
MIF	Multilateral Investment Fund
NAE	Nacionalidad Achuar del Ecuador Achuar indigenous Nationality of Ecuador (in Spanish NAE stands for Nacionalidad Achuar del Ecuador)

PROJECT INFORMATION
ECUADOR
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IN ACHUAR TERRITORY
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Country and Geographic Location:	Ecuador: Morona Santiago and Pastaza provinces; Taisha and Pastaza cantons.		
Executing Agency:	Fundación Asociación Latinoamericano para el Desarrollo Alternativo (ALDEA)		
Focus Area:	Inclusive Cities		
Coordination with Other Donors/IDB Group Operations:	This Project was selected as a winner of the INE/ENE-led IDEAS Energy Innovation Contest. Under the IDEAS co-sponsoring agreement, the MIF made a commitment to fund one winning IDEAS project. We are also coordinating with INE/ENE as part of their access to energy commitment under the SE4ALL initiative. There are two complementary operations in execution: EC-G1001 from IDB and the MIF EC-M1063.		
Project Beneficiaries:	1021 people in nine indigenous Achuar communities in Ecuador		
Financing:	Technical Cooperation:	US\$ 150,000	
	TOTAL MIF FUNDING:	US\$ 150,000	56%
	Counterpart:	US\$117,000	44%
	TOTAL PROJECT BUDGET:	\$267,000	100%
Execution and Disbursement Period:	12 months of execution and 18 months of disbursement.		
Special Contractual Conditions:	Special conditions precedent to first disbursement will be: i) ALDEA hires a Project Coordinator; and ii) ALDEA presents the Project Execution Plan.		
Environmental and Social Impact Review	This operation was screened and classified as required by the IDB's safeguard policy (OP-703) on May 12, 2017. Given the limited impacts and risks, the proposed category for the Project is C.		
Unit responsible for disbursements	MIF/CEC		

I. The Problem

A. Problem Description

- 1.1. The Amazon rainforest has been identified as the second most vulnerable area in the world after the Arctic (Kriegler, Hall, Held, Dawson, & Schellnhuber, 2009)³. Climate change and increasing human intervention are driving the Amazon to a tipping point, with high rates of deforestation, migration and pollution in the region, threatening its life supporting ecosystem services and putting pressure on local cultures (UNDP, 2016)⁴. Much of the pressure is caused by increased infrastructure development, facilitated by road expansion, opening up of vast areas of forest to agriculture and timber extraction, mining and petroleum activities, and migration (UNDP, 2016)⁴.
- 1.2. Currently, most travel in the Amazon is with expensive, contaminating gasoline and diesel motorboats. The excessive cost of these fuels, which are often flown into roadless territories by plane, means that on a day-to-day basis, many families do not have access to any form of mobility other than walking or paddling canoes. Road networks are extending ever-further into the Amazon, including towards Achuar Territory, but they do not represent a viable solution. As it has been well documented, roads cause deforestation, bring cultural degradation, and are the second leading contributor to climate change after the burning of carbon fuels. As such, many indigenous groups in the Amazon, including the Achuar, oppose the extension of road networks into their territories.
- 1.3. The principal problem addressed by this Project is the lack of access to efficient and sustainable transportation that would allow isolated indigenous communities in the Amazon region to access basic services, trade among themselves, and take advantage of sustainable economic opportunities.
- 1.4. The Achuar are one of 14 indigenous nationalities in Ecuador, and their territory is one of the last remaining (non-reserve) expanses of the country without extractive activities. The territory of the Achuar indigenous Nationality of Ecuador (NAE) is made up of 670,000 Ha of mainly intact tropical forest, almost entirely under a legalized collective land title. The territory is in the upper basin of the Ecuadorian Amazon basin, between the sub-basins of the Pastaza and Morona rivers, belonging to the provinces of Morona Santiago and Pastaza, bordering with the

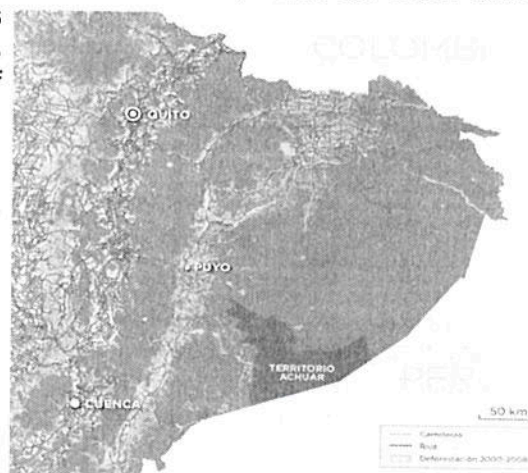


Figure 1: Roads and Deforestation

³ Kriegler, E., Hall, J. W., Held, H., Dawson, R., & Schellnhuber, H. J. (2009). Imprecise probability assessment of tipping points in the climate system. *Proceedings of the national Academy of Sciences*, 106(13), 5041-5046

⁴ UNDP (2016) The Amazon and Agenda 2030. Policy Paper. Regional Centre for Latin America and the Caribbean Casa de las Naciones Unidas, Ciudad del Saber, Edificio 128 Panama City, Panama

Republic of Peru. The official population of the Achuar people is 7,000 inhabitants (INEC)⁵.

- 1.5. Achuar political governance is structured by a democratic tier system. The 78 communities elect governing councils, and decision-making is undertaken in democratic assemblies. The communities are organized into 10 associations, which also elect councils. All 78 communities attend an annual NAE assembly, which deals with territorial issues and the NAE council provides reports to the assembly. Every four years the Achuar elect a new council for the collective territory. The NAE, as a third level organization, is a member of Confederation of Nationalities to the Ecuadorian Amazon (CONFENIAE), which is in turn a member of the Confederation of Indigenous Nationalities of Ecuador (CONAIE).
- 1.6. The Achuar traditionally base their diet on hunting, fishing and gathering, as well as small orchards (where medicinal plants are generally grown in addition to food), often through agroforestry itinerant farming practices. Due to the lack of access roads to markets, the flow of income within communities is limited and agricultural production is mainly aimed at self-consumption. In addition, due to the lack of roads into the Achuar Territory, the main modes of transport are: i) on foot, ii) river canoes (with and without gasoline motorboats), and iii) light aircrafts. More than 71.2% of the population of the Amazon is considered poor, and 35.6% are in levels of extreme poverty according to their Basic Unsatisfied Needs (MAGAP, 2014)⁶. Income generating employment is limited to teachers in the local primary schools, and in a small number of communities, in high schools. This means that most Achuar households have very limited access to cash - around \$60 per/month, per person (IICA, Baseline study, 2012)⁷, and nearly half these Achuar households have no access to income (IICA, Baseline Study, 2012). Nevertheless, cash is necessary for this families to finance their transportation inside and outside their territory. Housing in Achuar Territory is satisfactory and all members have a roof over their head, often constructed with local materials, including wood, fiber and leaves. In the Project area, none of the communities are connected to the national electricity grid, or potable water system. Certain houses have solar panels, but at very limited capacity. Water is sourced from nearby rivers. The execution of the solar transport Project has the potential to generate benefits for nine Achuar communities settled along 67 km.

II. The Innovation Proposal

A. Project Description

- 2.1. The **objective** of this Project is to 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. The final goal will be to prepare the scaling of the Project across the Amazon basin.

⁵ Source: National Institute of Statistics and Census (INEC)
http://www.inec.gob.ec/estadisticas/index.php?option=com_content&view=article&id=187&Itemid=138&lang=es?TB_iframe=true&height=600&width=1000

⁶ Ministerio de Agricultura, Ganadería, Acuacultura, y Pesca (2016) Agenda de Transformación Productiva Amazónica

⁷ IICA & Pachamama (2012) Baseline study on socio-economic aspects for Kara Solar (unpublished)

- 2.2. The Project will design and construct a transportation system consisting of two solar-powered boats and one solar-powered recharge station/micro-grid. A functioning pilot community enterprise will be created to manage and govern the transportation system, initially serving nine Achuar communities located along 67km of the Pastaza and Capahuari Rivers. The last step of this process will be to share the transportation system and enterprise models across the Amazon basin, creating new scaling up opportunities.



Figure 2: The routes of the transportation system

- 2.3. **Innovation:** While the technical design that underlies KARA SOLAR is a crucial and unique element of the Project, the feature that most sets it apart is a community enterprise model locally managing a renewable energy system, that is designed to improve Achuar livelihoods and strengthen local territorial governance. Active local participation at every stage of the Project, and eventual ownership, is key to long term viability, and as such, we are investing in creating a model of capacity building and local governance and management that empowers local communities to operate and strengthen the system sustainably.
- 2.4. **COMPONENT I: DESIGN AND CONSTRUCTION OF THE SOLAR-POWERED RIVER TRANSPORT SYSTEM. (MIF Contribution US\$32,500 and Local Counterpart US\$71,000).** This component is a collaboration among naval and electrical engineers, industrial designers, and members of the Achuar Nationality. The interdisciplinary and intercultural work will consolidate previous advances made by KARA SOLAR to generate technically innovative and culturally appropriate infrastructure for the solar-powered river transpiration system. Resources in this component fund the acquisition of equipment, the construction of the infrastructure, and the testing, evaluation, adaptation, and delivery of the boats and recharge station. The prototype solar boat has already been built: an 18 passenger, 16-meter-long vessel modeled on traditional Amazonian canoes and equipped with 32 lightweight solar panels and a fully electric propulsion system. The activities in this component will include the evaluation and testing of the prototype boat, as well as its transportation to Achuar Territory. This component will also finance the technical design of two new infrastructural elements: a second generation solar-powered boat and a community-based solar micro-grid/recharge station. The new infrastructure will be fully implemented and evaluated in preparation for scaling phase (post-project) expansion and replication.
- 2.5. **COMPONENT II: Creation of a pilot community enterprise to manage and govern the transportation system (MIF Contribution US\$45,000 and Local**

Counterpart US\$15,000). The general objective of this component is to build the technical management and governance capacities, systems and structures needed to ensure the sustainable operation of the solar boat infrastructure in Achuar Territory. In order to accomplish this, there will be technical and administrative training for the maintenance and operation for the solar-powered transportation system, including the development and implementation of a culturally appropriate, experiential, workshop-based curriculum in photovoltaic solar energy, electrical engineering, naval engineering, fiberglass repair, boat safety, and enterprise administration. All these activities will aim to empower locally selected members to successfully fulfill the maintenance and operation of the solar-powered transportation system. The capacity building of community members will be accompanied by the establishment of management and governance structures for the solar-powered transportation system. This entails a process of workshops and assemblies that create structures which will facilitate a process of local empowerment of oversight and management of the solar-powered transportation system in a sustainable manner. This process will initiate before the first solar boat arrives in Achuar Territory, and it will continue throughout Project implementation. These structures will in turn guide the creation and implementation of the enterprise plan for the solar-powered transportation system, a business plan which will allow the solar-powered transportation system to be financially sustainable in the long term.

- 2.6. These activities will be complemented by facilitation and follow up in the development and adaptation of the community enterprise, including a multi-actor management committee that is responsible for developing Project strategic planning, and oversight of progress, and adaptation, applying an adaptive management methodology. The management committee will be supported with regular information on the Project's success indicators, which will contribute to effective decision-making.
- 2.7. **COMPONENT III: KNOWLEDGE MANAGEMENT AND REGIONAL INTEGRATION (MIF Contribution US\$19,600 and Local Counterpart US\$16,000).** This component is designed to take innovation beyond its original conception, and move it to a much broader scale of ownership and implementation. It is based on a permanent effort to systematize the Project to have sufficient information that allows its replicability in different fluvial environments, as well as in different socio-cultural spheres. Every step of the Project, from the design and construction of the prototype boat to the creation of the community enterprise and business plan, will be systematized in anticipation of expansion beyond Achuar Territory. From the technical data generated in-field, to training methodologies, to local governance and management structures, to the implementation of the business plan, KARA SOLAR will build the expertise to turn previous accomplishments into new projects in an efficient and effective way
- 2.8. This effort will be undertaken with a consortium of civil society and prestigious research institutions and the results will be focused on strengthening the KARA SOLAR model before replicability and scalability. Potential studies include:
 - a. Feasibility and navigability, on new potential areas for replicating the KARA SOLAR model.
 - b. Socio-economic analysis of the local market economy and the Amazonian needs considering indigenous Amazonian Cosmo-visions.
 - c. Study of navigability of rivers of the Amazon.

- d. Social and institutional innovation for sustainable community enterprise.
 - e. Multivariable study on solar and electric river transport systems.
 - f. Study on sustainable methods of generation and storage of electric power.
 - g. Study of micro-grids adapted for the Amazon.
 - h. Biodiversity monitoring study in two regions of the Amazon.
 - i. Study of regulatory framework analysis of mobility for the Amazon.
- 2.9. This component will aim to consolidate a platform of social demand for this innovation. Strategic alliances have already been formed with different indigenous organizations of the Amazon basin, grouped in the Coordination of Indigenous Organizations of the Amazon Basin (COICA), to promote the value of the development of a river transportation system, culturally and environmentally adapted to the Amazonian context. Leaders of this organization, established in 9 countries of the Amazon basin, are eager to see the results of this Project.
- 2.10. One of the objectives of this component is to make the Project known to local and national governments, so that there may also be an institutional demand for this innovation. This will be possible with the implementation of an effective communication strategy, based in diverse tools like videos and social media to reach key audiences.

B. Project Results, Measurement, Monitoring and Evaluation

- 2.11. 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”⁸ family canoes, the KARA SOLAR solar-river transport system reduces costs and pollution, including CO₂ emissions, and increases opportunities for isolated Amazonian communities.
- 2.12. **Results.** The Project is expected to have the following results: (i) a new sustainable community enterprise to effectively manage the solar infrastructure to the benefit of the local communities; (ii) 1021 people with improved access to transportation; (iii) 5 Tons of CO₂ in greenhouse gasses reduced through a reduction in fossil fuels consumption; (iv) a new solar micro-grid installed in an indigenous community; (v) 6 new skilled and paid employment positions filled by local community members; (vi) 4 new practices implemented by setting up multi-actor management structure, multi-level governance structure, adaptive management, and gender focus; and (vii) 3 new alliances committed to scale up this enterprise.
- 2.13. **Monitoring and Evaluation.** ALDEA will be responsible for submitting project status reports to the FOMIN – through the PSR system - within thirty (30) days following the end of each semester, and the dates on which the FOMIN determine, having informed ALDEA with at least 60 days in advance. The report will provide details on Project progress in terms of Project implementation, achievement of milestones and indicators, and their contribution to achieving the objectives of the Project, according to the results matrix and other operational planning instruments. Problems encountered during implementation, and proposed solutions will also be reported. Within ninety (90) days after the disbursement period, ALDEA will report on final results achieved through a Final Status Report (PSR), which will contain the outcomes and indicators achieved, the sustainability plan, findings of the final evaluation and lessons learned.

⁸ “peque-peque” are small motor-fueled boats

- 2.14. In order to ensure that complete and verifiable information is available for the PSR's, ALDEA will maintain two complementary Monitoring and Evaluation (M&E) systems: (a) a biannual evaluation of Project progress according to the Project indicators established in the results matrix, and (b) a participatory monitoring and evaluation system that will be undertaken with the local project committee in charge of overseeing the successful design and implementation of the Project.
- 2.15. The biannual progress M&E will be undertaken by a selected M&E specialist hired by ALDEA. Progress will be assessed against a Project baseline measured at the beginning and according to the indicators identified in the Project results matrix. Data collection will be undertaken by a mix of measures and activities, including the revision of all Project documentation, onsite visits, and interviews and focus groups with key individuals and stakeholders. Results will be fed into the PSR.
- 2.16. KARA SOLAR will launch the first prototype of a solar fluvial transport system in the Amazon. Systematic learning and adaptation are key to the prototype's successful implementation and for building a model for replication. The Project will apply a participatory, results based monitoring and evaluation strategy with the project's local executive committee – made up of members from local communities, the NAE, and ALDEA. Project stakeholders themselves will define and Key Performance Indicators (KPIs) through a process of guided storytelling. This is essentially what a successful Project will look like to stakeholders at Project completion. Stories will be guided to include the components of infrastructure performance, community enterprise functioning, Project benefits, communication and participation, gender, amongst others. The narrative of these stories will be translated into KPIs by the technical team that can be monitored over the Project life span. Tools to measure these KPIs will be designed, including data-review, surveys, and questionnaires. Results will be recorded and incorporated into easy to understand reporting visuals. The Project Executive Committee will benefit from this information as a consistent decision-making tool that provides real time feedback regarding Project progress, challenges and opportunities.

III. Alignment with IDB Group, Scalability, and Risks

A. Alignment with IDB Group

- 3.1. The Project aligns with the following IDBG strategies: (i) Update to the Institutional Strategy 2016-2019 (UIS) in which Climate Change and Environmental Sustainability is a cross-cutting issue; (ii) IDB Climate Change Sector Framework Document: countering climate change impacts that worsen the region's already low level of productivity and innovation; (iii) IDB Integrated Strategy for Climate Change Adaptation and Mitigation and Sustainable and Renewable Energy: expanding lending and technical assistance in key sectors such as sustainable agriculture; (iv) Renewed Vision for the IDB Group Private Sector Merge-Out: private sector to take a leading role in carbon reduction efforts, and new business opportunities that contribute to sustainable development; (v) IDB Biodiversity and Ecosystem Services Program: promotion of private sector innovation for protection of ecosystems; and (vi) Ecuador IDB Country Strategy: promote initiatives to encourage adaptation, mitigation of greenhouse gases, and sustainable management of forests, and biodiversity⁹, and the NSG windows will support

⁹ Paragraph 3.43 on Climate Change and Environmental Sustainability, Ecuador IDB Country Strategy 2012-2017.

projects to develop alternative energy sources¹⁰. There are two complementary operations in execution EC-G1001 from IDB and the MIF EC-M1063.

B. Scalability

- 3.2. **Path to scale.** In Ecuador alone there are over 100,000 indigenous people living in remote regions, virtually all of them with access to navigable rivers. They face virtually the same accessibility challenges as the Achuar do. A successfully implemented Project also translates smoothly into regional expansion throughout the Amazon basin, where there are approximately 14,000 km of major, navigable rivers and an estimated five million people without access to affordable and reliable energy and transportation.
- 3.3. Following the successful completion of this Project, the executing agency ALDEA has already identified implementation partners in Ecuador and Peru (with Ecuador's indigenous Amazonian confederation, CONFENIAE and the Peruvian counterpart, AIDESEP). The most likely immediate expansion would be an extension into northern Peru, connecting the 78 Achuar communities in Ecuador to other communities from their same linguistic Jibaro group, such as Shuar, Awajun and Wampis in Peru. In so doing the Project will not only strengthen socio-economic ties between communities and nationalities, but also expand the geographic scope that relies on solar powered river transport - reducing the pressure for further road construction.
- 3.4. To facilitate the successful replication of the model, the Project will establish and maintain a rigorous knowledge management and communication area. Project progress and results will be steadily communicated to the strong national and regional network of indigenous, public and private actors, and alliances will be fostered to systematically develop a strategy for KARA SOLAR's expansion.

C. Project and Institutional Risks

- 3.5. The Project Team have worked with the Achuar Nationality and the participating communities for more than four years. Through extensive consultation, they have established that the Project concept is very well received by the Achuar people at both the political and local level. It is well suited to local needs as identified by the Achuar themselves, limiting potential social conflict. Addressing deforestation remains a challenge throughout the Amazon basin due to the necessary "evil" of road construction to provide isolated communities with the same opportunities as other parts of the world. If this Project can demonstrate that affordable, clean river transport is possible in the Amazon, it could provide an alternative to damaging road construction.
- 3.6. **Limited local technical capacities.** 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. In order to mitigate this risk, local technical capacity building modules, and cultural adapted manuals will be implemented in each community.
- 3.7. **Limited local capacities to manage the community enterprise.** This risk could limit the sustainability of the Project. However, component II is specifically focused on mitigating this risk, and a best practices community enterprise "incubation" system will be applied.

¹⁰ Paragraph 3.6 on Energy, Ecuador IDB Country Strategy 2012-2017.

- 3.8. **Expansion of road network in the area.** This may lead to lower fuel prices in the Project area and it could negatively affect the Project's business model. In the medium term, it is unlikely that the road network will expand into the Project area. The closest road access is still at Copataza community, several hours canoe ride north, with difficult fluvial access.
- 3.9. **Political conflict among Achuar Nationality of Ecuador (NAE).** The Project aims to maintain leadership over the Project at the local level, and build local ownership in the communities. As this process progresses, the potential impact of political conflict on the Project is mitigated. The likelihood of this was significantly reduced when a new NAE council was selected. This new leadership has the backing of all Achuar communities, and the new president is a strong leader, limiting the likelihood of renewed conflict.
- 3.10. **Navigability of the Amazonian rivers could change.** This could impact the route assign to the boat, not allowing to serve some the communities identified. In order to mitigate this risk, local monitoring system of the rivers will be implemented and new areas of possible expansion will be asses.
- 3.11. **Lack of sufficient demand for this solar-powered transport system.** This could be due to the photovoltaic canoe's slowness or because it's expensive rates. On one hand, speed is not a problem; the solar boat can reach higher velocity compare to local peque-peque canoes, while faster outboard motor boats do not serve those communities. On the other hand, regarding the price, there will be differentiated rates for tourists and members of local communities. Price ranges will be established considering the local demand and the long-term sustainability of the community enterprise. What is even more important is that ALDEA and PlanJunto experts have identified multiple unmet transportation needs among those communities for education, health emergencies, local products trade, and the like.

IV. Instrument and Budget Proposal

- 4.1. The Project has a total cost of \$225,000, of which \$150,000 (56%) will be provided by the MIF, and US\$117,000 (44%) by the counterpart as follows in the next chart expressed in US dollar:

Project Components	FOMIN	Counterpart	Total
Component 1: Design and construction of the solar-powered river transport system.	32,500	71,000	103,500
Component 2: Creation of a pilot community enterprise to manage and govern the transportation system	45,000	15,000	60,000
Component 3: Knowledge management, communication, and networks	19,600	16,000	35,600
Component 4: Project Management/Administration	50,400	15,000	65,400
Component 5: Ex-post reviews*	2,500	0	2,500
Gran Total	150,000	117,000	267,000
% of Financing	56%	44%	100%

Note: * Indicates expenses which may be executed by the Bank, disbursed by the Bank and credited to the Bank, without a Disbursement Request by the Executing Agency.

- 4.2. **Instrument.** The instrument to be used is non-reimbursable technical cooperation given the objective of this Project.
- 4.3. **Retroactive Recognition of Counterpart Funds.** The Project will recognize up to an amount of \$62,000 in expenses incurred during 2016 and May 2017 for the design and construction of the prototype solar powered boat (which is already built), design and validation of community enterprise governance structure, and communication strategy and audiovisual production of inauguration boat trip.

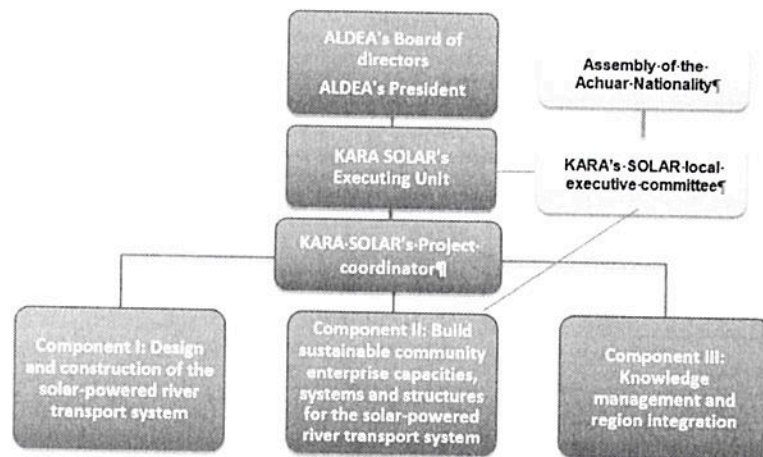
V. Executing Agency (EA) and Implementation Structure

A. Executing Agency Description

- 5.1 Fundación Asociación Latinoamericana para el Desarrollo Alternativo (ALDEA) will be the Executing Agency (EA) of this Project and will sign the agreement with the Bank.
- 5.2 ALDEA is a nonprofit Ecuadorian organization based in Quito that was founded in 2004 to promote sustainable development. ALDEA fosters local communities' sustainable development based on research, development and implementation of programs and projects. ALDEA's board is deeply experienced and committed, with representatives from civil-society and possesses the legal, administrative, and infrastructural resources required to manage the Project.
- 5.3 ALDEA has extensive experience working in the Ecuadorian amazon territory, and has both, developed important relationships with key local community leaders as well as extensively engaged with all relevant local stakeholders. The Project team has successfully built a prototype solar boat for 20 people specifically designed as a lightweight, modular passenger/cargo system combining state-of-the-art photovoltaics, batteries and engines with indigenous hull designs ideally suited to Amazonian rivers.
- 5.4 ALDEA has been responsible for the technical and administrative monitoring of the United Nations Small Grants Project in the Amazon region from 2005 to 2012. It is currently executing the Weaving Ties Project, funded by the FORD Foundation, to promote the exchange of experiences between Indigenous organizations in Asia, Africa and the Americas on issues of forest management and adaptation to climate change. In this context, the Coordinator of Indigenous Organizations of the Amazon Basin (COICA) is one of ALDEA's counterparts.
- 5.5 The CONFENIAE, and therefore, the NAE are key players in the execution of this Project. Aside from the NAE, the main ally in the implementation, ALDEA has united a coalition of partners around the Project, including the Solar Electric Light Fund (SELF), the Massachusetts Institute of Technology's Center for Ocean Engineering, the Sloan Entrepreneurs for International Development of the MIT Sloan School of Management, Ecuador ESPOL University, the Quito Instituto Metropolitano de Diseño, United Nations Economic Commission for LAC (CEPAL), World Wildlife Fund, LUSH Cosmetics, Pastaza and Morona Santiago provincial governments, the Municipality of Aguarico, and the Amazon Basin Coordination of Indigenous Peoples (COICA).

B. Implementation Structure and Mechanism

- 5.6 ALDEA will establish an Executing Unit and the necessary structure to execute Project activities and manage Project resources effectively and efficiently. ALDEA will also be responsible for providing progress reports on Project implementation.
- 5.7 The KARA SOLAR's Executing Unit, is a space of decision-making that will govern the strategic planning and oversight of Project progress in line with strategic goals and managing resources in line with these goals. This internal working group is formed by the ALDEA's president, KARA SOLAR Project Coordinator, and PlanJunto. They will oversee the implementation of the Project led by the KARA SOLAR coordinator. This executing unit aims to be a strategic support to the coordinator in the implementation of Project, and will be accountable to ALDEA's president and ALDEA's Board of directors, as well as to the MIF.



- 5.8 A locally-driven and accountable process is key to ensure the success of this community transport system. KARA SOLAR is overseen by a locally-led Executive Committee, made up of: (i) four local Achuar members - respected elders from the area of the Project, who were selected by their communities and associations due to the deep respect and authority they have; (ii) a member representing the Achuar government NAE; (iii) the KARA SOLAR coordinator; and (iv) an additional representative from ALDEA. This committee debates, designs, implements, monitors, evaluates and adapts the systems and actions to be undertaken to achieve the Project's vision. In other words, it oversees the operational work plan for implementing the solar river transport system in Achuar Territory. This committee is accountable to the assembly of the nine communities, the highest instance of power in the Achuar traditional governance system.

VI. Compliance with Milestones and Special Fiduciary Arrangements

- 6.1. **Disbursement by Results, Fiduciary Arrangements.** The Executing Agency will adhere to the standard MIF disbursement by results, Bank procurement policy¹¹ and financial management¹² arrangements as specified in Annex V.

¹¹ Link to the Policy: [Procurement of Works and Goods Policy](#)

¹² Link to the document [Operational Guidelines for Management of Milestones and Financial Supervision for MIF and SEP Technical Cooperation Projects](#)