



The Appropriate Technology Collaborative Project Document.



PROJECT DOCUMENT

Project number	ATC20210017
Title of the project	Dazzling Schools
Duration	Six months
Estimated start date	February 2022
Location	Quetzaltenango, Guatemala
Executing body	The Appropriate Technology Collaborative
Partner organizations	Poder y Luz Maya, Escuela de la Calle
Budget	35,000 USD
Access mode	International
Beneficiaries	<p>Direct:</p> <ul style="list-style-type: none"> • 159 children and adolescents living in poverty, benefited by the Escuela de la Calle Institution • 140 fathers and mothers • Seven teachers • Administrative and school staff <p>Indirect:</p> <ul style="list-style-type: none"> • 2,000 families living in the area • 100 houses around the school (approximately 400 people)
Areas	<p>Access to energy</p> <p>Energy justice</p> <p>Education</p>
Results	<p>Emission reduction</p> <p>Strengthening vulnerable groups</p> <p>Infrastructure improvement</p>
<p>Short description</p> <p>The Program presents projects supporting the transition to a development path that combats poverty, promotes low carbon emissions and resilience to climate change. And it includes a portfolio of projects that will be developed between 2022 and 2024. This portfolio contains proposals focusing on renewable supplies and energy access, energy efficiency, reduction of deforestation and forest degradation emissions, development of climate-resilient infrastructure, reduction of climate change risk, economic development, and building local climate resilience.</p> <p>General objective:</p> <p>The project seeks to improve the resilience capacity of the communities living in the Quetzaltenango area, improve their livelihoods, and reduce greenhouse gas emissions.</p> <p>The proposed activities seek:</p> <ol style="list-style-type: none"> 1. Facilitate the operation of the facilities of the School Center for low-income children "Escuela de la Calle" through photovoltaic electrification. 2. Entrust the management of the resources provided to the beneficiary community and empower women in decision-making. 	



The proposed activities are good practices for community adaptation and climate change mitigation, complemented by robust monitoring and evaluation systems. The project includes a science and technology component to improve the knowledge base to guide future activities to mitigate carbon emissions and improve community well-being.

Specific objectives:

- Install eight photovoltaic modules in the school to facilitate educational processes.
- Develop technical skills and basic knowledge in installing, operating, and maintaining photovoltaic modules, which allow their technical support.
- Strengthen community development

Project milestones	Date/Time
Board approval (if applicable)	
Expected financial close (if applicable)	
Estimated implementation dates (start and finish)	February 2022
	July 2022
Project life	20 Years / 0 Months

Thematic analysis.

Description of the problem.

Almost 800 million people live without access to electricity. In a world of deepening inequalities between the haves and the have-nots, this is a blatant injustice. With cheap renewable energy and green investments, we can make energy poverty history in the next decade. Universal access to energy is possible, but we must start making significant strides and soon.

The lack of electricity inhibits those aspects of daily life that many of us take for granted. Electricity drives our economies - we need it in schools, offices, and hospitals, where it now refrigerates life-saving vaccines. We need to expand access to electricity on an industrial scale so that families in sub-Saharan Africa can aspire to the same standard of living as families in other parts of the world

Guatemala shows a high dependence on hydrocarbons. Given Guatemala's low electrification rate and the high cost of extending the grid to remote areas, off-grid renewable energy solutions can improve energy security. This project seeks to implement off-grid energy systems and strengthen the climate resilience of



Quetzaltenango and reduce energy poverty; this project will result in emissions avoided by reducing the use of kerosene and diesel.

Lack of access to energy also restricts access to other essential services such as food preservation or home lighting.

On the other hand, Guatemala has a literacy rate of 80.5%, making it one of the countries with the highest illiteracy in Latin America; this is the consequence of a slow process of expansion of educational coverage in the last half of the 20th century and is still a pending task in the first decade of the 21st century.

The little support that education receives for 2008, only 3.5% of the Gross Domestic Product was allocated. In other countries of the region, more than 5% of GDP is assigned to this item.

The formal Guatemalan educational process is made up of different educational cycles: pre-primary, which serves the population aged 5 to 6; the primary one, destined to the population of 7 to 12 years; the basic level for adolescents from 13 to 15 years old and the diversified level, from 16 to 18 years old. After this process, you enter tertiary education. Another vital facet of the Guatemalan educational system is that the children who study pre-primary and primary are, for the most part, in public schools. However, at the primary and diversified levels, most of the enrollment is in private institutions due to the little coverage that exists at these levels in the public sphere.

Out of every five students in primary school, one is out of time for their age. This phenomenon is more acute at the primary level (40%) or even at the diversified level (33%).

The permanence and the approval of the students are consecutive challenges to the coverage. The basic cycle is where the slightest approval is identified and where the highest student dropout occurs; this implies that, although almost 100% of 7-year-old boys and girls enter the first grade of primary school, few are those who manage to complete their training process.

Education does not just have a classroom with teachers and students; verify that students are learning and have the proper conditions.

Quetzaltenango is located in a fertile agricultural region 2,400 m above sea level and 200 km west of Guatemala City. Quetzaltenango has approximately 150,000 inhabitants, 65 percent of whom are indigenous and speak Quiché or Mam in addition to Spanish. The region is an important agricultural, industrial and cultural center of the country.



In some rural areas of Quetzaltenango, poverty levels reach 93.8%. People from these areas are likely to emigrate, for example, to the departmental capital in search of work and a better life. Young people often abandon their studies to migrate, find work and contribute to the family income. Migration often leads to the disintegration of family stability and an increase in violence or, in the worst case, the abandonment of children.

In a deeply divided society, children are the most affected by inequality. Primary school attendance in Quetzaltenango is good, but of the 13-15-year-olds, only about 43% are still studying. These rates are even lower for young people between the ages of 16 and 18, with only about 20 percent still studying. Although national programs to improve these figures have brought some improvements in recent years, progress is slow, and the economic situation of many families means that they cannot survive without the economic contribution of their children.

The lack of electricity in schools is unfortunate due to the many services in the classroom. Lighting can allow classes to be taught early in the morning or late at night.

Access facilitates the introduction of technologies in the classroom.

Electrified schools can allow retention and better-qualified teachers, and it has been correlated with improvements in both test scores and graduation rates.

Electricity in education gives low-income people access to lighting, communication, and educational opportunities and impacts reducing illiteracy and improving the quality of education.

Poor infrastructure affects teachers as well as students.

Access to electricity plays a crucial role in learning outcomes in schools. We can identify five immediate improvements by having access to photovoltaic and dignified electrification:

- Lighting and extended study hours
- Facilitation of technologies in the classroom
- Professionalized staff
- Teacher retention and training
- Better school performance based on attendance and completion rates

School electrification produces multiplier effects, such as community improvement, health, gender empowerment, and even reduction of migration and strengthening of resilience.

Severe power shortages and high costs have reached a critical point in Quetzaltenango, jeopardizing basic services such as lighting, which ties education and school services. Children are forced to study on the street and only in the daylight hours. Children who attend in the evening use candles and oil lamps to illuminate themselves, putting them in danger when they find outside facilities without



light. To break the cycle of poverty, ATC has taken the initiative to electrify Escuela de la Calle.

Justification for the ATC intervention

We aim to be part of universal access to accelerate improvements in energy efficiency. ATC recognizes that each region determines its path to achieving its energy aspirations. Each country's transition to a sustainable energy sector involves a combination of resource opportunities and challenges, generating a different emphasis on access, efficiency, and renewable energy. Every effort will be made to minimize the financial and environmental costs of expanding the reliable power supply

In our work in the global south, the priority will be affordable and reliable energy. Grid and off-grid solutions will be sought for electricity. Off-grid solutions based on renewable energy combined with energy-efficient technologies could be the fastest means of providing good energy services in rural, remote, or isolated areas. Participation in cleaner cooking and heating solutions will increase.

We will go beyond individual projects to consider the full range of power supply options in any region.

We will help address regulatory barriers to adopting climate-friendly energy solutions. Steps include promoting energy solutions at scale to reduce costs and establishing and enforcing the appropriate regulatory framework to accelerate the transition into the future.

Opportunities will be identified to encourage local community participation and empower women to achieve sustainable solutions.

Strategic context.

This project is part of our strategy to achieve universal access to energy and alleviate poverty.

Synergies with other programs and projects

The project will maintain a close relationship with the following programs that ATC executes in various regions:

Detroit Solar

Solar 20



The experiences in implementing the projects mentioned above and initiatives will provide valuable elements to strengthen the programmed actions.

Target groups.

Education stakeholders include teachers, teacher educators, professionals, parents, students, and the wider community.

The project seeks to directly benefit the school of the Street student members to strengthen their response to the lack of education and the school disaffection.

Gender and human rights issues.

Women are the first to be affected by the depletion of natural resources. Women are responsible for managing and day-to-day use of natural resources and the family's sustenance by growing food, gathering forest products, and collecting wood and water.

The planning of our projects considers gender equality and female and girls empowerment.

Paradigm shift potential

The extent to which the proposed activity can catalyze impact beyond a one-time investment in a project/program.

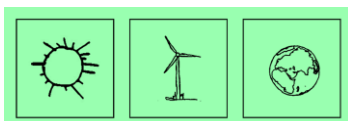
The project presents an innovative approach to reducing ATC emissions and improving the livelihoods of one of the most vulnerable populations in Guatemala. As expected, if the results are successful, the method can be replicated in other Guatemalan provinces inhabited by vulnerable communities threatened by climate change.

Description of the project strategy.

Place and duration.

The project will last six months (6), beginning in February 2022 and ending in July 2022. Project activities will be carried out in the city of Quetzaltenango.

The project may extend its duration to the extent that the necessary financial resources are available to cover the basic costs of operation and execution of activities programmed and agreed with the counterpart.



The project's execution will be in charge of The Appropriate Technology Collaborative.



ATC logical framework

Title of the project:	Sustainable development goals:	Region and country:	Project number or code:
Dazzling Schools	1, 4,5,7,11,13,17	Quetzaltenango, Guatemala	ATC20210017
		Date: November 2021	Duration: 6 months
Expected achievements:			
Escuela de la Calle has photovoltaic energy for lighting, office equipment, and essential appliances for its operation.			
Relationship with other programs: ATC programs, Detroit Solar			
Description	Indicators	Means of verification	Risks / assumptions.
Objective:	Number of panels installed during the six months of project execution	Quarterly report of the partners.	Risk: the rainy season begins in the final phase of implementation, which can delay work.
Contribute to the development of the capacities of the Escuela de la Calle through the implementation of photovoltaic panels, facilitating its operation	Project execution on time		Assumption: partners are willing to collaborate
Outcome 1.			



Capacities of Escuela de la Calle strengthened to achieve its objectives of access to education	Number of panels installed during the six months of project execution	Final report of the counterpart		
	Number of people trained to use photovoltaic energy			
	Tons of coal not emitted per year			
Output 1.1.				
School facility with 18 classrooms, illuminated and with access to photovoltaic energy	Indicator:	Means of verification:		
	18 illuminated classrooms	Photographic evidence		
	Two illuminated bathroom services	Report signed by the Director of Education of Escuela de la Calle		
Key activities related to Product 1.1:				
Two illuminated bathroom services	1.1.1. Field visit to the Street School			
	1.1.2. generation of study and feasibility document			
Output 1.2.				
The operation of the photovoltaic panels is working	Number of panels installed	Street School Report		
	Number of people trained to use solar panels			
	Number of profiles created for the specialized prosecutor, investigation bodies, and support staff			
	Key activities related to Output 1.2:			
	1.2.1 Project document generation			
	1.2.2 Development of alliance document			
	1.2.3 Generation of training materials and documents			
	1.2.4 Fundraising			



Project management and execution

Supplies

The project will be financed by The Appropriate Technology Collaborative (ATC). These funds, which add up to 35,000.00 USD, will be used to support the basic costs of project implementation (personnel, operation, travel, among others).

Provisions for staffing, management, and coordination

The director will supervise the project coordinator, the execution of activities, results, and financial balance. Likewise, it will provide quarterly and annual reports to the partners and the Board by ATC.

The Project Coordinator will lead and develop the commitments expressed in the project's programming and fully comply with the related activities, issuing progress and financial reports at the requested need. Likewise, she will direct the operation of the activities of the work team and present the results to the counterpart and ATC supervisors. The ATC director will directly supervise the work of the project coordination.

The technical assistance of the project will be provided by a Solar Electrician who will support the generation and implementation of the technical support of the project and the training actions, diagnosis, and technical recommendations that are required.

An Administrative Manager will be in charge of maintaining working relationships with the different actors involved in the execution of the project, and the second, in keeping the accounting, payments, travel logistics, and finances of the project.

To execute field activities, ATC will subcontract specialized consultants who, supervised by the project coordination, will develop specific actions to achieve the results programmed by this document.

ATC Headquarters in Michigan will monitor the project, providing substantive assistance and monitoring the quality of the results obtained. Specifically, the work of ATC Headquarters to this project will be: a) the review and approval of a project document and the legal documents that support it, b) the monitoring and supervision of the financing and expenses of the project, c) the substantive supervision of activities, d) the evaluation of the project and the preparation of a final financial report.



Monitoring, reporting, and project completion.

ATC will be responsible for the transparency and accountability of the activities and expenses carried out in the project.

Our first step in the execution of the project activities, a work plan, will be developed, following the logical framework of this project, and will be agreed upon with the counterpart and the donor agency to ensure the delivery of the programmed products anticipated times and budgets.

To carry out periodic monitoring of the project, ATC will provide detailed reports of the activities carried out and evaluations of the activities implemented and financial administration.

The work plan may be modified if the counterpart so requires. The project coordination must proceed to the corresponding project document reviews as the case may be.

Annual and monthly reports

Semi-annual and annual reports will be designed by the project coordination and presented to the counterpart and donor agency to communicate the progress achieved and record the recommendations or reviews of the parties involved.

Project completion report

Once the project evaluation process is finished, a completion report will be provided by ATC to the counterpart and partners to communicate the results of the project and its evaluation. This evaluation provides a judgment from project beneficiaries and partners on the extent to which the project has achieved the results planned and the administrative, management, and financial information necessary to complete the project.

Evaluation and monitoring

Project activities will be monitored through management actions, including monthly briefings with counterparts, weekly staff meetings, and review of staff and adviser input to quarterly reports. A system will be established to channel counterpart responses through activity feedback forms, and the findings will be incorporated into change recommendations as necessary.

Specific issues addressed in these feedback forms will include the quality of technical assistance provided by the project, the quality and timeliness of the



performance data provided by the project, and the response of beneficiaries to project assistance.

The M&E system will provide information on the execution of the project, progress towards the achievement of critical objectives, and the probability of achieving impacts and results. The Project Coordinator will prepare reports for each regular meeting of the project team with the partners. An external independent third party will carry out the final evaluation of the project.

The final Independent Project Evaluation is scheduled to take place two months after the project completion date.

These evaluations will assess the impact of the results, the design, the relevance, the effectiveness, cooperative relations with the counterparts, the contribution to gender equality and human rights, the efficiency of the activities carried out, and the sustainability of the effects of the project. Future project. In the same way, it will be possible to prepare recommendations and lessons learned for future ATC projects and define the indicators of progress and the project's achievements.

The management of the Independent Project Evaluations will be in charge of the project coordination. Its immediate actions include: a) the design of the Terms of Reference of the evaluation, b) the selection and hiring of an independent evaluation team, c) facilitation of the evaluation implementation process, d) the relationship with the Partners Key to Learning, e) the review of the draft reports, and f) the development of a follow-up plan for the recommendations obtained in the evaluations. The Project Coordinator will also be in charge of providing logistical support to the evaluation team, including the organization of field missions, in coordination with the respective regional or field offices.

The Independent Evaluation Unit guides the evaluation process, comments and approves the Terms of Reference, offers support throughout the evaluation process. The UEI also backs the selection of the evaluation team and the methodology, comments on and approves the draft and the final evaluation reports, and the follow-up plan for the recommendations obtained in the evaluations.

The Key Learning Partners, the main partners, comment and generate comments on the Terms of Reference and evaluation questions, statements and create words on the project reports, and assist in implementing the recommendations.

The independent evaluation process seeks to include the active participation of the leading project partners, such as the implementation team, the substantive ATC offices involved, the implementation partners, government counterparts, civil society organizations, representatives of groups of beneficiaries, project board members, donors, etc.



Risk management

Risks			Mitigation
ID	Probability	Impact	Risk mitigation strategy
Risk 1: Lack of cooperation from partners	Median	High	Strategy for risk 1: Time established to generate a relationship of trust and present the benefits of cooperating with the initiative.
Risk 2: Lack of consensus in the mechanisms of action of the project implementation	Median	High	Strategy for risk 2: Generation of a specific analysis with different proposals but by the state and national regulatory framework, allowing the mechanisms to be selected by consensus

The project will not generate adverse environmental and social impacts and risks. Instead, the Street School and the Quetzaltenango community's institutional strengthening while improving livelihoods in the province.

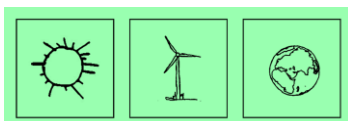
Risk mitigation strategies

- Transparency in communication
- Participation in project activities will be conditional on the peaceful and respectful meeting of all stakeholders to create a shared vision for
- Dissemination of the scope and components of the project will continue throughout the life of the activities.

Sustainability

Project results are sustainable beyond the project life cycle, and the focus is likely to be broadened to cover other provinces and regions.

Project activities are based on the capacity development approach, which involves, among other principles, the delegation of the products generated by the project to its partners.



The sustainability is guaranteed by the training of local civil society organizations in terms of strategic programming of activities and the integration of gender; human rights approach as a transversal axis in the execution of the activities.

The project will seek the systematization of the results to identify best practices and lessons learned that can be replicated in other territorial contexts or a project extension.

Commitment to stakeholders

Consensus will be the preferred method in negotiating local complaints and demands. In particular, the project will expand the participatory monitoring process to include a space to collect suggestions, questions, and complaints directly from the community (in contrast to the formal process in which the community leader provides feedback to the project managers). All suggestions, questions, and complaints will be documented, analyzed, and equipped with a formal response.

Resource efficiency and pollution prevention.

The project will not generate significant pollution or GHG emissions. Innovation will be promoted to ensure efficiency during project management.

Community health, safety, and protection.

The project will ensure that health and safety conditions apply to communities and staff working on project activities.

In addition, it will be ensured that all sanitation and safety standards required by the relevant authorities that issue the authorizations are met. A record of incidents and accidents will be kept so that corrective measures can be implemented.

Land acquisition and involuntary resettlement.

The project will not generate the displacement of indigenous communities. Instead, it will strengthen their security and settlement. There is the possibility that non-indigenous peoples and people from outside the territory may inhabit the same territory as the project beneficiaries. In these cases, the project will develop a policy of intercultural interaction



Conservation of biodiversity and sustainable management of living natural resources.

The project will help protect and conserve the biodiversity and ecosystem services of Quetzaltenango through community management plans.

Indigenous villages

The project does not require an indigenous peoples plan because the beneficiaries of the entire project are indigenous peoples. However, the project will prepare these plans with the communities as elements of our processes.

Cultural heritage.

The project will fully respect the cultural heritage of the population of Quetzaltenango.

Legal context

The development of this project is part of the instruments signed by the Office of The Appropriate Technology Collaborative.

In the event of conflicts between the provisions of this Project document and those outlined in the Agreements mentioned earlier, the provisions of this Project document will prevail concerning the same activities.

Supervision/audit clause

This project will be subject to the supervision/audit of the ATC Board. The ATC will coordinate such supervision or audits and follow up on the agreed recommendations arising from them.



ANNEX I. Indicative work plan.

GOALS / Products	MAIN ACTIVITIES / MILESTONES	SURVEILLANCE MILESTONES, BY TWO MONTHS / YEAR			Costs associated with each activity (USD)	RESPONSIBILITY	REASONS FOR THE VARIATION / CORRECTIVE MEASURES ADOPTED
		Bimester 1 2022	Bimester 2 2022	Bimester 3 2022			
Result 1. Capacities of Escuela de la Calle strengthened to achieve its objectives of access to education							
School facility with 18 classrooms, illuminated and with access to photovoltaic energy	1.1.1. Field visit to the Street School	X				ATC	
	1.1.2. generation of study and feasibility document	X				ATC	
	1.1.3 Feasibility opinion	X				ATC	
Two illuminated bathroom services	1.1.4 Development of alliance document		X			ATC	
	1.1.5 Generation of training		X			ATC	



	materials and documents						
	1.1.6 Purchase and installation of photovoltaic panels		X			ATC	
The operation of the photovoltaic panels is working	1.2.1 Monthly project reports	X	X	X		ATC	
	1.2.2 Final project report			X		ATC	
	1.2.3 Project evaluation			X		ATC	

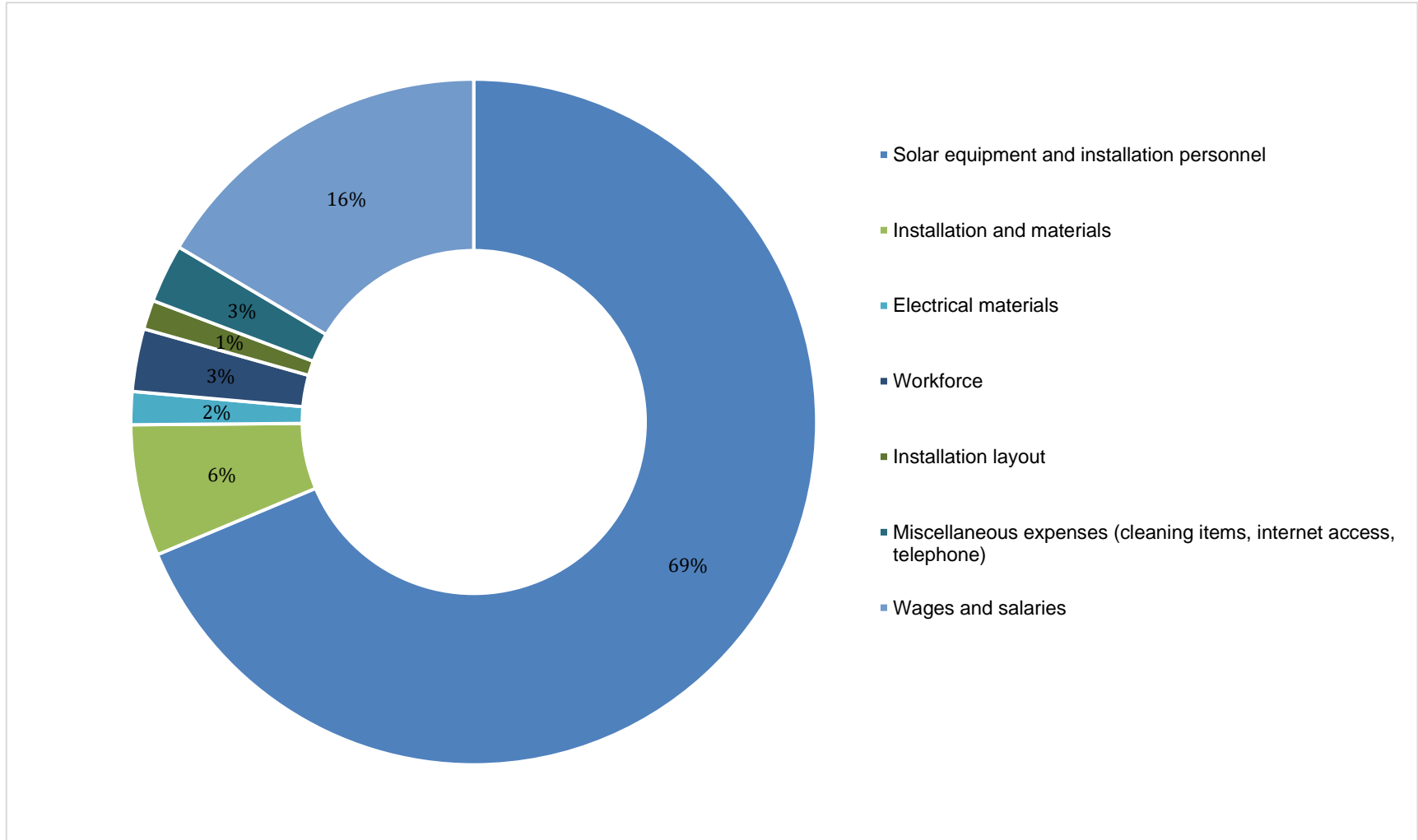


ANNEX II. Budget.

Project name	ATC001
Project number	2021001
Date	11/11/2021
Total Project Budget Amount	\$ 35,000.00
Admin costs + Program	

Expense category	Exercise	Quantity	Total Cost \$ (Excl. GST)	Responsible / notes
Project	Solar equipment and installation personnel	1	\$ 21,393.12	Local supplier
Project	Installation and materials	1	\$ 1,929.06	Local supplier
Project	Electrical materials	1	\$ 484.06	Local supplier
Project	Workforce	1	\$ 921.64	Local supplier
Project	Installation layout	1	\$ 429.00	Local supplier
Project	Miscellaneous expenses (cleaning items, internet access, telephone)	1	\$ 860.15	ATC personnel
Project	Wages and salaries	1	\$ 5,132.97	ATC personnel
Project	Final evaluation	1	\$ 3,850.00	External consultant
Total Project Cost	35,000.00			





Budget graphic



ⁱ Online resource available at <https://distintaslatitudes.net/archivo/la-educacion-en-guatemala-algunos-datos-para-description-su-situacion#:~:text=El%20proceso%20educativo%20formal%5B2.%5D%2C%20of16%20a%2018%20a%C3%B1os>.

