



ENERGÉTICA
ENERGÍA PARA EL DESARROLLO

energía con equidad

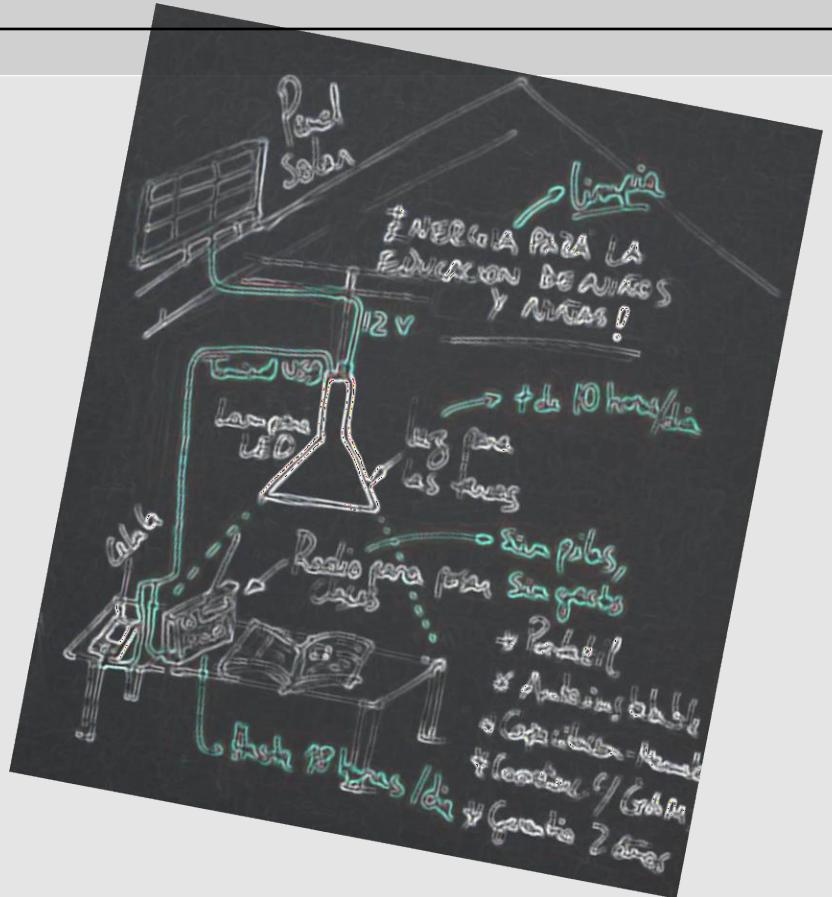
ENERGÍA PARA LA EDUCACIÓN
E INFORMACIÓN DE NIÑOS Y
NIÑAS EN EL ÁREA RURAL NO
ELECTRIFICADA

ENERGY FOR EDUCATION AND
INFORMATION DISTRIBUTION FOR
STUDENTS IN RURAL AREAS
WITHOUT ELECTRICITY

Cochabamba, enero,
2021

**Acción de emergencia en el marco de la pandemia
COVID-19:**

**Emergency action in the frame of the COVID 19
pandemic:**



CONTEXTO

- La emergencia sanitaria ha suspendido las clases presenciales en colegios a nivel nacional en 2020 y en 2021 se iniciara clases a distancia en el área rural
- El Ministerio de Educación esta en proceso de aprobar los reglamentos para clases virtuales
- Se prevé usar Internet, Televisión y Radio, en función de la cobertura. En el área rural dispersa con seguridad, la radio será el medio mas utilizado
- Las familias rurales sin acceso a electricidad cubren sus demandas de energía con pilas, velas, mecheros y leña
- La Pandemia limita los ingresos de las familias por restricciones de movilización y acceso a insumos y mercados

CONTEXT

- The health emergency has suspended in-person classes throughout Bolivia. The government has determined that distance classes will begin via radio in rural areas in 2021.
- The Ministry of Education is in the process of approving the regulations and curriculum for virtual classes.
- The Plan for this program will utilize the Internet, Television and Radio, depending on the coverage and access in each area. In the rural areas, radio will be the most widely used medium.
- Rural families without access to electricity will need to batteries, candles, lighters, and firewood to meet their energy demands.
- The Pandemic is already limiting the income and potential earning of families as a result of restrictions on mobility and access to inputs and markets.

PROBLEM S

Social:



- The biggest barrier to fighting the pandemic is the lack of information and communication with rural communities and families.
- Students are not able to participate in classes due to infrastructure limitations (energy).
- Delayed educational development of children.
- Possible abandonment of the school year by students as a result of the lack of access to energy, internet, and infrastructure to support learning.

Economic:



- Batteries represent up to 70% of household energy expenditure on energy.
- Pressure for higher expenses on the family economy to provide electricity and resources at home that students would otherwise receive at school.
- The pandemic limits the earning potential of families due to mobility restrictions and poor access to inputs and markets.

Technical:



- Many rural areas have no access to the electricity grid and the government does not have a timeline for when access may be available.
- Intensive consumption of batteries, candles, firewood, and lighters.
- Families do not have access to renewable energy technologies in their homes.

Environmental:

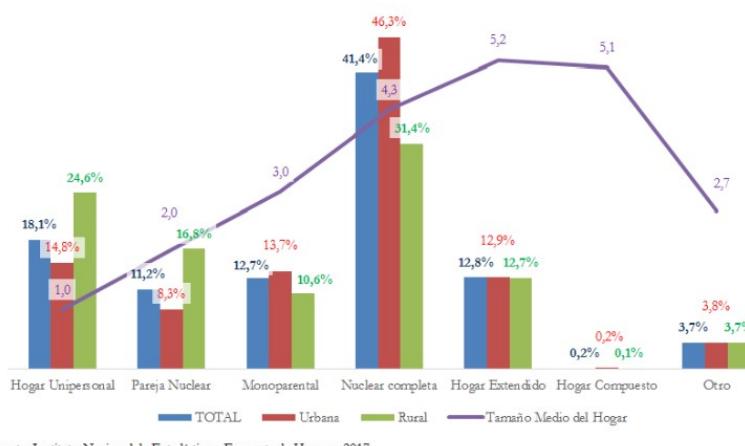


- The smoke from candles and lighters causes visual and bronchopulmonary disorders.
- The use of batteries and waste are highly polluting.
- There are no systems for disposal or recycling.

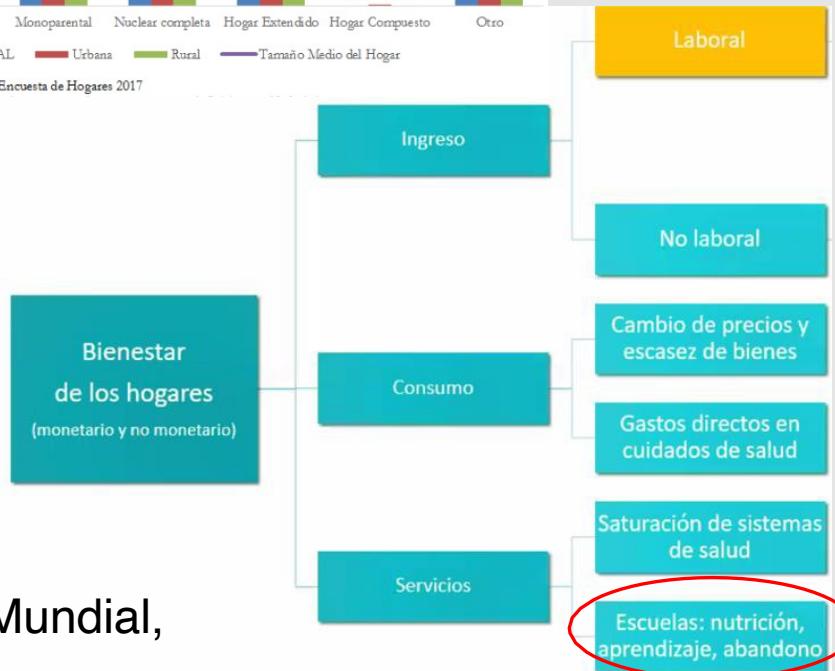
IMPACTOS COVID-19 SOBRE NIÑO@S EN EL ÁREA RURAL

BOLIVIA: TAMAÑO MEDIO DEL HOGAR Y TIPOLOGÍA DE HOGAR,

ENCUESTA DE HOGARES 2017



Principales vías de impacto del COVID-19 en bienestar



Banco Mundial,
2020

- Nutrición, aprendizaje, abandono escolar
- Sin energía, no se podrá acceder a las clases
- Posibles conflictos por el uso del aparato de radio
- Cuarentena

Vulnerabilidad a cuarentena: Dimensión geográfica

1. Imposibilidad de clases en línea

- Baja cobertura de electricidad
- Pocos radiobases para distribuir señal
- Baja cobertura de telefonía

SDSN,
2020

Estimación de niñ@s sin acceso a la energía, y consiguientemente a la información y educación

Nivel	Hogares rurales con niñ@s sin electricidad	Niñ@s en área rural sin acceso a electricidad
Nacional	132.300	294.900
Cochabamba	24.500	54.600

IMPACTS OF COVID 19 ON CHILDREN IN THE RURAL AREA

- Lack of access to nutrition, learning, and increased school dropout without the ability for students to attend in-person classes at the schools.
- Without power, classes will not be accessible to rural families.
- Potential for inter-familial conflicts over the use of the radio devices.

Quarantine vulnerability due to geography:

- Rural areas have little if any access to online classes
- Very low electricity coverage
- Too few base stations to distribute cell or internet / satellite signal
- Poor telephone coverage

Estimation of children without access to energy, and consequently limited access to information and education:

LEVEL	Rural Homes without access to electricity	Rural Homes without access to electricity
Bolivia / National	132,300	294,900
Cochabamba	24,500	54,600

CRITERIOS DE CONSTRUCCIÓN DE LA SOLUCIÓN

CRITERIA FOR THE SOLUTION



The solution must be able to address the problem (slide 3) quickly (in 30 to 60 days).



It must be economical; the lower the cost the higher the coverage and number of families served.



It must maintain a level of quality to be functional over time and wear and tear, and the solution needs to meet minimum requirements of service.



Must effectively provide light to read and do homework, radio to listen to classes, and offer cell phone for communications.



It must be autonomous: operational without external intervention or supervision.



Does not use consumable energy (such as batteries, combustible resources, or similar).

OBJETIVO:

Proporcionar un kit de energía solar que apoye prioritariamente la educación a distancia e información de niños y niñas de familias rurales sin acceso a la red eléctrica y altos niveles de pobreza, en la emergencia sanitaria COVID - 19

- Seleccionar las áreas de intervención por nivel de pobreza, predisposición del Municipio a co-financiar, focalización de los financiadores
- Estructurar la logística que permita llegar con los kits a las familias rurales aisladas y dispersas en condiciones institucionalmente válidas, con acuerdos y compromisos municipales
- Diseñar un sistema de financiamiento con participación multi institucional

OBJECTIVES:

- Select the focus areas by level of poverty, predisposition of the Municipality to co-finance, and potential for additional funding/donors.
- Design logistics that allow the kits to reach isolated and scattered rural families in poor conditions, with municipal agreements and commitments in place to ensure support and funding.
- Structure a financing system with multi-institutional participation.
- Provide a solar energy kit that primarily supports distance education opportunities to students from rural families without access to electricity.

REQUISITOS MÍNIMOS PARA ATENCIÓN NIÑOS Y NIÑAS EN EDUCACIÓN E INFORMACIÓN

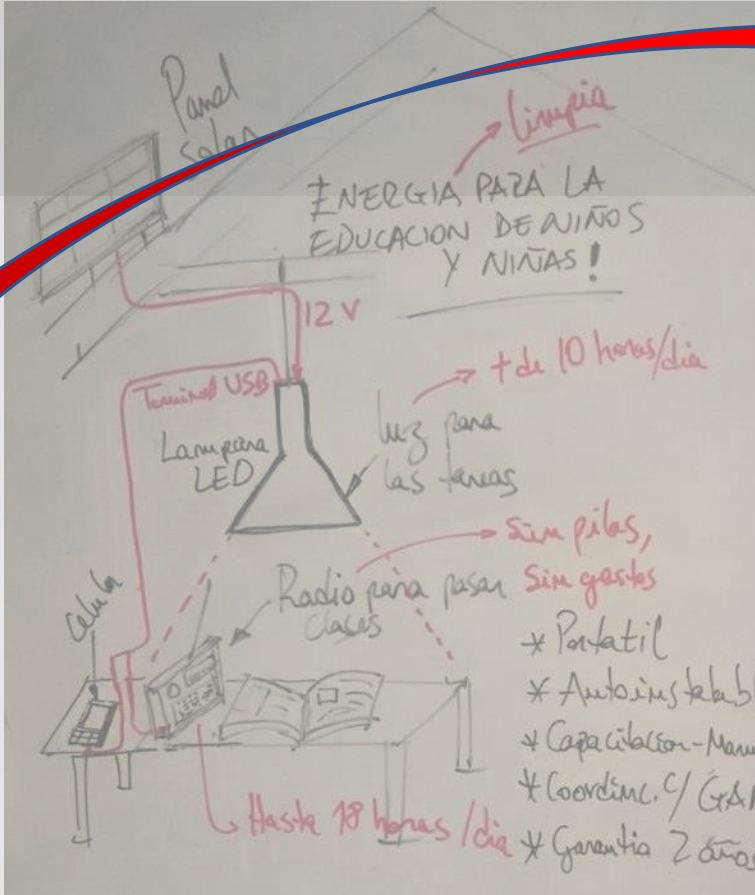
REQUIREMENTS FOR PARTICIPATION

- Uso de la radio por al menos 10 horas al día (para educación) y de otras 8 horas para información
- Iluminación de una superficie con calidad suficiente para leer, escribir, y realizar actividades educativas
- Cargado de celular (al menos 2 celulares por día)
- Solución autónoma y segura
- Solución autoinstalable, y de uso intuitivo

- Radio use for at least 10 hours a day (for education) and another 8 hours for information
- Illumination of a surface with sufficient quality to read, write, and carry out educational activities
- Cell phone charged (at least 2 cell phones per day).
- Autonomous and secure solution
- Self-installing solution, and intuitive to use

PROUESTA: KIT SOLAR AUTÓNOMO PARA EDUCACIÓN A DISTANCIA CON RADIO

PROPOSAL:
**AUTONOMOUS SOLAR KIT FOR
EDUCATION AT A DISTANCE
WITH A RADIO**



ESPECIFICACIONES TÉCNICAS

Technical Specifications

Advantages:

- eliminates the use of batteries, candles, lighters, or firewood for light
- lighting levels are equivalent to having 12 candles lit
- provides pro lighting approximately:
 - 5 hours, strong light
 - 15 hours, intermediate light
 - 55 hours, low light
- Water resistant
- Portable (the whole set weighs approximately 1 kg)
- The picolamp battery can be recharged with any 12 V source (solar panel, 12 V battery, car charger, etc.)

Equipo

1 Panel Fotovoltaico de 5 Wp
1 Picolampara Phocos (patente alemana)
LED 120 lumen Vida útil de 50.000 horas
1 Cargado de celular USB
1 Adaptador con pilas tontas para radio 1
Radio receptor de mesa USB AM/FM
Manual de instalación y operación Garantía de 1 años

Equipment:

1 Photovoltaic Panel: 5Wp
1 Phocos Picolamp (solar lamp) LED 120 lumen 50,000-hour lifespan
Includes a USB charging port
1 Adapter for powering the radio
1 USB AM / FM table radio receiver
Users' manual and 1 year warranty



COSTOS ESTIMADOS:1000 FAMILIAS (2300 NIÑ@S)

Estimated Cost for 1,000 Families (~2,300 students)

Included in the \$112 USD

Price:

1,000 Familias		
Aporte en Bs.	Cofinanciamiento	(%)
785 bs/familia	785	Total Bs
785,000		\$112,287 Total \$US
200 ENERGÉTICA - Usuarios	25.5%	
155 Gob. Autónomo Municipal	19.7%	
400 Fuente a identificar	54.8%	
785	Total	100%
Tiempo de implementación: 60 días		
Trabajo simultáneo hasta 10 Municipios		
Unidad de trabajo mínima: 100 kits / Municipio		

Implementation time: 60 days.
Simultaneous work in up to 10 Municipalities.
Minimum work unit: 100 kits per Municipality.



Complete System kit



Coordination w/ Municipalities



Prioritization of areas and communities



Visits to communities for promotion



Counterparty contribution management



Equipment Delivery and installation



Training to users



Technical Assistance for 2 years

RESULTADOS ESPERADOS

- Niñ@s y sus familias tendrá acceso a información sobre la pandemia provocada por la COVID-19, los cuidados y acciones preventivas, lo que permitirá subir el nivel de conocimiento sobre esta enfermedad.
- En el momento que se active la educación a distancia, los niñ@s tendrán acceso irrestricto a este medio de comunicación, sin el costo y la limitación que significa las pilas.
- Se generará un ahorro en las familias al no comprar pilas por el uso de la radio, aliviando el stress económico agravado por la pandemia de la COVID-19, considerando el alto costo de las pilas
- El alcance del proyecto puede ampliarse la cobertura hasta 10.000 familias sin problemas y a nivel nacional

EXPECTED RESULTS:

- Children and their families will have access to information about the pandemic caused by COVID 19. These kits will improve communication regarding care and preventive actions, improve knowledge about this disease
- As soon as distance education is activated, children will have unrestricted access to this form of communication, without the cost and limitation of batteries.
- Savings will be generated for families as they will no longer need to purchase batteries for the use of the radio, flashlights, lamps, and other devices, thus relieving some financial stressors.
- The scope of the project can be extended to cover up to 10,000 families already approved at the National Level

¿QUIÉNES SOMOS?

- ENERGÉTICA es una organización no gubernamental que tiene mas de 25 años de trabajo en campo en energías renovables y la energía solar en específico (www.energetica.org.bo)
- Una de sus áreas de trabajo es facilitar el acceso universal a la energía a familias que no se encuentra en áreas de cobertura de la red eléctrica
- La institución tiene experiencia el campo de la energía solar, la energías renovables, la planificación energética, el desarrollo, la innovación tecnológica y el medio ambiente.
- Tiene relaciones vigentes con 32 Municipios en el área rural con población dispersa y no electrificada, con varias agencias de cooperación, y otras instituciones de desarrollo

ABOUT US:

- ENERGÉTICA is a non-governmental organization that has more than 25 years of work in the field of renewable energies and solar energy specifically (www.energetica.org.bo)
- One of its areas of work is to facilitate universal access to energy for families in areas not serviced by the electricity grid.
- The company has experience in the field of solar energy, renewable energy, energy planning, development, technological innovation, support (operations and maintenance), and sustainability.
- ENERGÉTICA has current relationships with 32 Municipalities in rural areas with a dispersed populations far from the electrical grid, with various governmental and cooperative agencies, and other development and nonprofit institutions.

GRACIAS POR SU ATENCIÓN



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Contacto: Miguel Fernandez:

miguel@energetica.org.bo whatsapp : +591 717 35

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