

December 2016

# Amaray

Energy and development for rural areas

**EnDev Peru**

An integral glance to the project  
implemented by GIZ

**Gender and  
energy**

Woman and her empowerment in the  
commercial chain of energy access



## Reaching the last mile

Although Peru has taken major steps to achieve universal access to electricity, the remoteness of communities still makes difficult to reach that "last mile". EnDev/GIZ Peru works with importers of energy access technologies, connecting them with local entrepreneurs. Here, a technical local young man carries out sales activities in the region of Cajamarca.







# Promoting the market of technologies

EnDev/GIZ Peru points at boosting the market of local retailers, promoting distribution chains that reach to rural areas. “Last mile entrepreneurs” are mainly local stores or people looking to enter into new businesses, turning them into final links of the distribution chain.









## Providing sustainable access to energy

Achieve long-lasting sustainability is one of EnDev/GIZ Peru challenges. Thus, while many families can be benefited with the use of technologies, it is important to understand that adoption is not a lineal process, but it depends on the needs and variable resources of each user and community.



Joan Sotomayor, collaborator of the EnDev/ GIZ Peru Project, in a visit to the community of Ichoca, in the highlands of Lima.



Dear readers,

It is my pleasure to share with you the eleventh edition of magazine Amaray. On this occasion, we would like to present some experiences of EnDev/GIZ and its partners in Peru.

Energising Development (EnDev) is a global alliance that began in 2005 in order to promote access to basic energy services to twenty million people around the world by 2020, which is funded by six donors: Germany, the Netherlands, Norway, the United Kingdom, Sweden and Switzerland. At present, EnDev is executed by the German Cooperation, implemented by GIZ in 26 countries in Africa, Asia and Latin America. In Peru, the project starts in 2007, located in Arequipa and since 2009 works providing advice to public and private institutions in the country.

Despite the efforts made by the Peruvian Government in last decades to close energy access gap, the demand remains largely unattended. Some figures showing this situation are: in electrification, as of December 2015, there is a gap of 7% (546,000 households), concentrated mainly in the rural area; in energy for cooking, while about 76.2% (6 million households) have access to a modern cookstove (improved cookstove, natural gas and PLC), the remaining 23.7% (1.8 million households) still lacks coverage; moreover, in heating, two million households in the high Andes are affected by temperatures below zero without having thermal insulation or heating systems.

To face this challenge, which means closing the gap, EnDev/GIZ Peru and its partners join efforts to adopt strategic proposals and actions that aim at contributing to achieve universal energy access in Peru. In this context, Amaray presents in this edition a wide spectrum of experiences ranging from energy for cooking to rural electrification, showing green finance alternatives, as well as the challenges involved in the monitoring and following-up of these experiences. Furthermore, the topic of women empowerment is addressed through their entrance to the commercial chain of energy access, presenting as example the stories of Tomasa and Lucero, two women who has managed to implement successful businesses regarding energy.

These experiences will inform the reader on how to provide access to energy based on existing natural resources in the country, and how initiatives should be designed to contribute to improving the quality of life of Peruvians who live mainly in rural areas.

We invite you to read this edition carefully and give us your comments and/or suggestions in the search for the best mechanisms and strategies to make Latin America the first continent with universal access to energy.

My regards to you all,

**Ana Isabel Moreno Morales**  
**Director of the Energising Development Project EnDev/GIZ Peru**



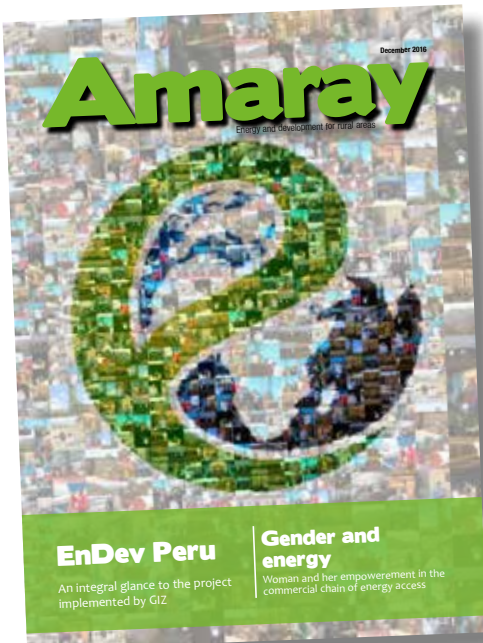


In the region of Cajamarca, a mother has equipped her household with a domestic photovoltaic system.

22

**Special.**  
Woman and her empowerment for access to energy.

Archive EnDev / GIZ



<b>Energy for cooking.</b> Establishing the market of improved cookstoves	<b>10</b>
<b>Rural electrification.</b> Ensuring access to electricity.	<b>14</b>
<b>Sustainable market.</b> Bringing technologies supply to the forefront.	<b>18</b>
<b>Portraits.</b> Happiness for having an own business.	<b>28</b>
<b>Inclusive green financing.</b> Microfinance for energy access.	<b>38</b>
<b>Monitoring and follow-up.</b> Paths to sustainability.	<b>42</b>
<b>International.</b> Visionaria leaders, empowering agents of change.	<b>46</b>

Funded by:



Coordinated and implemented by:





## CREDITS

---

**General Director:** Ana Isabel Moreno Morales.

**General Editor:** Carlos Bertello.

**General Coordination:** Irene Arbulú.

**English Translation:** Andrea Colchao.

**Contributors:** Victor Cordero Torres, Fernando Aspajo Hidalgo, Angel Verástegui Gubler, Alicia Castro Rivera, FairMail, Juan Carlos Quiroz Huerta, Ileana Monti, Paul Spurzem y Paola Saldivias Méndez.

**Design and Layout:** Felipe Chempén.

**Printing:** Gráfica Bracamonte.

---

Amaray is a publication for social purposes published by the German Cooperation, implemented by GIZ, through the Energising Development Project EnDev-GIZ in Peru. For more information, write to [ende.v.peru@giz.de](mailto:ende.v.peru@giz.de)

[www.endevperu.org.pe](http://www.endevperu.org.pe)

Deutsche Gesellschaft für  
Internationale Zusammenarbeit  
(GIZ) GmbH

Prolongación Arenales 801  
Miraflores, Lima 18, Peru  
(511) 422-9067

[ende.v.peru@giz.de](mailto:ende.v.peru@giz.de)

---

---

---

# Amaray

 ©

Energy and development for rural areas

November 2015, N° 9

Reproduction is forbidden of  
all or part of the contents of  
this publication in any form or  
by any technical means without the  
respective authorization.

Legal Deposit in the  
National Library of Peru  
N° 2012-08264



**Portfolio. FairMail.**  
Fair trade with photographs.

32

Chandra Shekhar, 20 years old, Varanasi, India.



# Establishing the market of improved cookstoves

ASPem - Filippo Taddei

Since 2007, the EnDev/GIZ Peru Project contributes to the development of a market of clean cookstoves for rural areas in the country, reinforcing both the supply and the demand of said technologies. In addition, since 2015, new models of portable improved cookstoves have been launched into the market, an innovation that will allow expanding even more their access.

By Víctor Cordero Torres, Technical Advisor for the Energising Development Project EnDev/GIZ Peru





Promotional events encourage the acquisition and use of improved cookstoves in rural areas.

Today in Peru, 76.2% of households (6 million) have access to some type of modern technology for cooking, whether it is electricity, natural gas, liquefied petroleum gas or improved cookstoves (ICS), according to the INEI data from 2014. However, still 23.7% of households (1.8 million) use inefficient devices for cooking their food, mainly in rural areas.

The Energising Development Project EnDev, executed by the German Cooperation, implemented by GIZ, provides technical assistance to public and private entities in Peru since 2007, thereby contributing to the development of a market of clean cookstoves, which addresses the problem described.

Since 2009, the market for improved cookstoves has evolved considerably in the country, obtaining greater dynamism thanks to the implementation of a strategy proposed jointly by EnDev/GIZ Peru and its partners, focusing on four aspects:

First, provide advice to the institutional demand, this is to say, to the government or other donors that acquire technologies centrally, thus enabling the end user to assume only a reduced marginal cost. In this context, technical assistance has been provided for implementing large-scale adoption programmes and projects for improved cookstoves.

Second, provide information to the retail demand, meaning, to final users who acquire technologies at market prices, in order to inform customers about the technologies and the different existing funding mechanisms to acquire them, such as microfinance institutions, the Fund for Sustainable Access to Thermal Renewable Energy (FASERT), the Results-Based Financing (RBF), either for ICS, through the Fund for Innovation and Development of Portable Cookstoves (FIDECOP), or for solar water heaters.

Third, strengthen the supply through capacity building to improve business and management models, as well as to provide incentives (FASERT and FIDECOP) that allow reducing market barriers -mainly logistics- in rural areas.

Fourth, develop advocacy mechanisms and knowledge management around cooking technologies, so that they are part of the public agenda.

#### **MARKET EVOLUTION**

In conclusion, the supply, demand and institutional framework of the ICS market have evolved

Since 2009, the market for improved cookstoves has evolved considerably in the country.



significantly since 2009. In the first two years, the market development proposed by EnDev/GIZ Peru focused on promoting quality supply, and raising awareness of the institutional demand. For that reason, with the technical assistance of the project and other partners, the Peruvian Government managed to launch the “Half a Million Improved Cookstoves for a Country without Smoke” campaign.

During this period, the regulatory framework was reinforced, meaning that quality standards and administrative regulations were established, which allowed public funds to be used for financing ICS. In addition, large-scale raising awareness activities were developed. The campaign also contributed to the existence of various companies that at present work actively in the ICS market, such as 2 importers, 10 manufacturers, and 15 assemblers. In that sense, markets conceived for those companies were both the institutional demand generated by

poverty alleviation government programmes, as the retail demand.

It is worth mentioning that until the end of 2015, only fixed ICS models were developed in Peru. To date, and due to the support of EnDev/GIZ Peru, mobile and portable ICS have been launched to the market, an innovation that will reduce technological costs and logistical and quality barriers that appear with the implementation of fixed ICS, decisive factors to reach the most distant and inaccessible regions, as for example the Peruvian jungle.

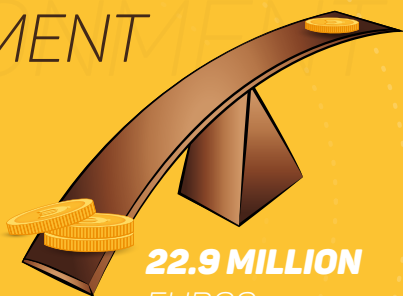
Despite these progresses, ICS sustainability has not yet been achieved. For this reason, services such as maintenance, repair and replacement shall continue to be promoted, as well as to continue searching for more efficient or less contaminating technologies, hand in hand with financing mechanisms that allow access to these technologies by the end user.

To date, and due to the support of EnDev/GIZ Peru, mobile and portable ICS have been launched to the market.

## RESULTS AND IMPACTS AS OF JUNE 2016

### ENVIRONMENT

- Creation of an ICS certification laboratory in SENCICO and development of quality standards aligned with ISO standards.
- Consolidation of an interinstitutional platform for Medio Millón de Cocinas Mejoradas por un Perú sin Humo campaign.
- Use of public mechanisms aimed at ICS large-scale adoption programmes and projects.
  - Creation and coordination of regional thematic platforms (Latin-American Network of Clean Cookstoves) as well as local ones (Thematic Group of Energy for Cooking).
  - Development of an ICS adoption programme with national partners.



**22.9 MILLION**  
EUROS  
LEVERAGED FROM PUBLIC  
AND PRIVATE FUNDS.

### SUPPLY

- Three microfinance institutions included ICS into their credit product portfolios.
- 15 certified ICS models were developed, which were made available to entrepreneur for their commercialization.
- Strengthening of actors in the ICS distribution and commercialization chain:
  - 10 local manufacturers and producers.
  - 2 importers.
  - 15 assemblers (companies that collect parts and offer kits).
  - 1,457 installers at national level.



**1,264 JOBS**  
WERE PROMOTED  
THROUGH THE ICS  
DISTRIBUTION CHAIN.

### DEMAND

- **184,190 ICS** installed in households, 1,576 in social institutions and 249 for productive uses, which have been provided with public financing and the technical assistance of EnDev/GIZ Peru.
- **8,168 ICS** have been sold by partners that were strengthened by EnDev/GIZ Peru.

**127,338 TC02**  
REDUCED  
BY REPORTED ICS.



A woman from the region of Arequipa shows the total improvement generated in her household since the acquisition of an improved cookstove.

## PARTNERS' TESTIMONIES

### Cooperation Fund for Social Development

“The strategy for large-scale installation of wood-burning improved cookstoves is new in FONCODES-UIFOE. Installing 50,000 cookstoves, with designs certified by SENCICO, in the same number of households of JUNTOS and Pension 65 programmes, nationwide and in a 2-year time frame, has been a great challenge that could be tackled with the cooperation of EnDev/GIZ Peru, inasmuch as its technical assistance to transfer the strategy, methodologies, tools and capacity building for the sustainability of this type of intervention, has been key to achieving the institutional goal”.

**Arturo Loayza**, Specialist of the Investment Unit for Economic Opportunities, FONCODES

### United Nations Development Programme

“The alliance with EnDev/GIZ Peru has been crucial for determining the applicable models of portable improved cookstoves prototypes, validated according to the geographical area, to be implemented nationally in public schools served by the National School Feeding Programme Qali Warma, marking a milestone in public policy of social protection, contributing to closing equipment gaps in schools, considering economic, social and cultural factors. We highlight the professionalism and experience of EnDev/GIZ Peru technical team, which will continue to be our ally during 2017 for the process of capacity building for the installation, use and maintenance of these technologies at the national level”.

**Rolando Wilson**, Technical Advisor, United Nations Development Programme



# Ensuring access to electricity

Since the association with private and public entities, as well as with entrepreneurs and local technicians, the EnDev/GIZ Peru Project has been developing the initiative Safe Rural Home, enabling thousands of Peruvians to have secure electrical service in their households.

By **Fernando Aspajo Hidalgo**, Senior Technical Advisor for the Energising Development Project EnDev/GIZ Peru





A young man trained as electrician carries out a safe electric connection in a household in Cajamarca.

In recent years, the Peruvian State has intensified the investment in rural electrification projects through the expansion of electricity grids. As a result, more than 1.5 million Peruvians have access to electricity in rural and peri-urban areas, where access to this service was difficult years ago.

However, electrification works only contemplate installations up to the household counter; then the problem of how to assure access to electricity from indoor connections appears. This becomes the responsibility of the new user, who has little or no information about where to buy quality supplies and get trained workforce to carry out installations. This situation makes many families to see a delay on the access to long-awaited electricity.

In response to this situation, the Energising Development Project EnDev Peru, executed by the German Cooperation, implemented by GIZ, in alliance with the General Directorate of Rural Electrification (DGER), the Peruvian Centre for Copper Promotion (PROCOBRE), the Energy and Mines Directorate (DREM) from different regional governments, electricity distribution utilities (EDEs) and local electricians, have been implementing the initiative Safe Rural Home, which promotes access to an efficient and quality electric service, by developing the retail market. The approach of the demand and the supply is promoted by two components: access to indoor connections through the promotion of safe installations between the counter and the household's general key, as well as indoor installations in grid extension projects; and access to electricity through off-grid systems, mainly solar home systems (SHS).

With regards to the interventions that complement the expansion of grids within the National Plan for Rural Electrification, the initiative generates that trained electricians offer families the service of indoor connections, contributing like this to closing the gap between the last electrified point and final consumption points in households or local institutions.

Concurrently, the development of the market implies promoting actions to support the penetration of technologies, therefore the EnDev/GIZ Peru Project has strategically become allies with public institutions (DGER, DREM San Martin and different EDEs), providing advice to incorporate and adapt the initiative Safe Rural Home in their activities. A remarkable example

The initiative seeks that trained electricians offer families the service of indoor connections.



is the incorporation of the promotion of safe and sustainable access to energy in households through the improvement of the physical conditions of indoor installations through the Budgetary Programme 46: Access and Use of Rural Electrification, implemented by the DGER. This programme provides information to rural demand so that access to electricity is of quality and complies with the characteristics related to the quantity of the supply, such as power, durability, reliability, safety and good quality, all of them necessary conditions for sustainability, which are promoted by both, EnDev/GIZ Peru and the global initiative Sustainable Energy for All (SE4ALL).

Regarding SHS, technical assistance has been provided to projects implemented by the Ministry

of Energy and Mines (MINEM), developing awareness, offering training materials and enabling the exchange of knowledge between public and private stakeholders.

Likewise, for those families that will not be served by electrification projects with interconnected and isolated systems (600,000 according to the MINEM data), which are at present illuminated with torches, candles, and artisanal lighters, the market of SHS as well as third generation photovoltaic systems, called Pico PV is developed and boosted. Furthermore, the EnDev/GIZ Peru Project is strengthening companies from the supply chain of these technologies, emphasizing on the development of distribution networks, mainly in the departments of San Martin, Amazonas, Cajamarca, Puno and Huanuco.

The project is strengthening companies from the supply chain of these technologies.

## RESULTS AND IMPACTS AS OF JUNE 2016

### ENVIRONMENT



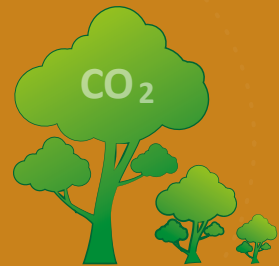
**16,486,784  
MILLIONS**

**EUROS**  
LEVERAGED BY PROMOTING  
GRID TECHNOLOGIES,  
SOLAR HOME SYSTEMS  
AND PICO PV SYSTEMS

- Eight distribution companies participate in the implementation of the initiative Safe Rural Home.
- The General Directorate of Rural Electrification of the Ministry of Energy and Mines, through the Efficient Use of Energy Programme has institutionalized the strategy Safe Rural Home.
- Development and update of the Regional Energy Policy of San Martin 2011 – 2025.
- Insertion of a course for installers of SFD in the educational curriculum of the National Training Service for the Construction Industry (SENCICO).
- Development of studies and pilot projects for technological innovation within the framework of the Rural Electrification Plan with renewable energies: Pico PV and hydrokinetic turbine of 5kW with three sources of energy: hydrokinetic, solar and diesel.

### SUPPLY

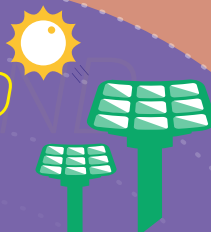
- 900 settlers trained as installers of indoor connections in the country.
- Twenty local entrepreneurs offering SHS installation and indoor connections.
- The articulation of the value chain of Pico PV systems has been strengthened, articulating regional importers and distributors, promoting the development of a network of local points of sale.



**14,757 TONS**

**OF CO2**  
WERE REDUCED WITH  
TECHNOLOGIES PROVIDED IN THE  
III PHASE OF ENDEV/GIZ PERU

### DEMAND



**1,501,892 WATTS**

**OF ELECTRICITY**  
INSTALLED BASED ON RENEWABLE  
SYSTEMS PROMOTED DURING THE  
II PHASE OF ENDEV/GIZ PERU

- 400,000 settlers sensitized, informed and trained in safe and efficient access to electricity.
- Access to electricity was provided to more than 400,000 people, 4,007 social institutions and 254 companies.
- 14,400 households and 292 infrastructure institutions had access to electricity through SHS.





Pico Pv systems are an alternative for those communities that will not be attended by rural electrification projects.

PowerMundo / REEP

## PARTNER'S TESTIMONIES

### Ministry of Energy and Mines

“For us, a fundamental contribution of EnDev/GIZ Peru is the methodological aspect, which has been adequately addressed especially focused on users of rural hamlets. The experience in organizing and coordinating with local and regional governments and organization of hamlets and communities, has given us a better panorama for the interventions we carry out. An essential advantage is the experience of EnDev/GIZ Peru in the development of educational platforms with a methodology already defined for the efficient and productive use of electricity”.

**Carlos Chavarry Calderón**, Coordinator of Planning of the General Directorate of Rural Electrification of the Ministry of Energy and Mines

### Regional Directorate of Energy and Mines of San Martin

“The Alliance with EnDev/GIZ allowed us to ensure access to energy to 60% of rural households in San Martin (10 provinces, 74 districts and 785 communities), which were benefited with the Rural Electrification Plan through the promotion of the indoor connections market. Pursuant to the Energy Policy of the region, there is still much to achieve in the electricity sector, such as working on power generation and interconnection in the northern area of the region with hydroelectric and photovoltaic technology. Moreover, it is necessary to promote programmes of productive uses of electricity and energy efficiency”.

**Rafael Rengifo**, former Regional Director of Energy and Mines in San Martin.



# Bringing technologies supply to the forefront

Since 2009, the EnDev/GIZ Peru Project works proposing alternatives of basic access to energy. For that purpose, it has been promoting a direct relationship between the demand and the supply of different technologies, which are favourable for the settler and the environment. To date, revenues of more than five million dollars have been generated, therefor benefiting half a million people in rural areas.

By Angel Verástegui Gubler, Technical Senior Advisor for the Energising Development Project EnDev/GIZ Peru

Archive EnDev-GIZ / PowerMundo



A young local technician carries out sales activities in Cajamarca, turning like this into a “last mille entrepreneur”.

## The project points to boosting local retail markets.

Latin America is a continent close to achieve universal access to electricity, meaning that 100% of households can be illuminated every day by having electricity as source of energy. Unlike the hundred million people without access to this service in Africa and Asia, electrifying the nearly 30 million people remaining in the American continent seems to be possible in the medium term. However, distance and dispersion of communities, which are excluded from this service, as well as population growth and inconsistent institutionality of governments and markets, are elements that make difficult to reach this “last mille”. Moreover, achieving universal access to energy, including access to reliable and environmentally-friendly cooking and domestic heating are elements that increase the challenge to almost 100 million people.

In the region of the southern hemisphere, which is closest to achieving the desired universal access, the urgency of innovation in the models for the provision of basic energy access technologies (EAT) is evidenced. For this reason, there are international cooperation initiatives as the Energising Development Project EnDev Peru, executed by the German Cooperation, implemented by GIZ, which has been working in Peru since 2009, proposing alternatives to basic access to energy, fostering a direct relationship between the supply and the demand of EATs.

### REACHING THE LAST MILLE

EnDev/GIZ Peru has understood that the EAT market requires an approach focused on the conventional distribution chain to reach most remote populations. Nowadays, these populations are already the customers and the target public of different distribution chains (imperfect and inefficient), that channel products and services such as groceries, medicine, telecommunications, as well as public services such as education, health and social assistance.

In this context, the project points to boosting local retail markets, becoming allies of these distribution chains that supply rural areas. “Last mille entrepreneurs” are mainly local shops or people that make the most to venture -some temporarily- in new businesses. For example, we refer to teachers or staff from the health sector. The objective is that these people integrate EATs into their conventional product portfolio, offering them in their natural market, which largely coincides with the target public of the project.

Complementarily, EnDev/GIZ Peru works with importers and manufacturers of EATs, and connects them with entrepreneurs and local businesses, to develop and expand their sales channels, allowing like this a greater capillarity in distribution chains in different regions. This work, differentiated in accordance with the volume of sales, allows each stakeholder to assume a specific and specialized function in the distribution chain. In addition to last mille entrepreneurs, importers and manufacturers, the project has identified a third type of key actor in the distribution chains: distributors or also called “wholesalers”. Today, the main challenge is to identify those entrepreneurs dedicated to the wholesale market of other products, who already have the logistical and financial capabilities, and want to continue innovating. So, EnDev/GIZ Peru’s work is focused on demonstrating the commercial potential of EATs, trying to induce wholesalers to invest in a market of products that are still little known, with higher unit costs and lower initial turnover than their regular products.

With this approach, differentiated in accordance with the volume of sales, EnDev/GIZ Peru tries to increase the efficiency of each stakeholder, clarifying the objectives to be achieved within the chain. In this line, a manufacturer should not focus on looking for unit sales, but its direct demand should be last mille entrepreneurs. Likewise, a last mille entrepreneur will not have to concentrate only on the sale of EATs, because its role is to approach the supply and the demand, not to dedicate exclusively to this business or to ensure large volumes of sales. For this reason, the presence of this stakeholder can be quite flexible, beyond the size and the regularity of the order, promoting however the continuity of EATs in its supply.

On the other hand, for the sustainability of the commercial supply, the most important for a distributor (apart from the frequency of orders) is a medium to large volume of sales (between 50 to 100 units per month), that also ensures an interesting profitability for better prices, a sustainable provision to the market of local entrepreneurs. The graph in page 21 represents the distribution chains in various regions and their corresponding stakeholders, comparing the evolution of expected sales in time.

In the evolution of sales, corresponding to the manufacturer or importer, it is the only stakeholder that may have a constant growing



volume of sales, depending on the replica of distribution chains in different regions, meaning, identifying new local wholesalers and retailers. On the other hand, technologies that require to be installed at the user's household, such as indoor electric connections or fixed improved cookstove tend to have smaller chains. Hence, direct commercial relationships are also generated among retail entrepreneurs and so-called "assemblers" of technologies.

#### ACHIEVEMENTS

From June 2009 to October 2016, EnDev/GIZ Peru has cooperated in the direct sale -without subsidies- of more than 100, 000 technologies, achieving profits for more than five million dollars and in turn benefiting half a million customers and the environment. Stakeholders of the distribution chain of EATs the project has been working with since 2009 are: 10 importers, 10 manufacturers of portable technologies, 15 assemblers of household technologies, 5 wholesales or regional distributors and 50 entrepreneurs from the las mille or local retailers(see graph).

This differentiation of roles helps EnDev/GIZ Peru to work more efficiently, since it allows concentrating specific activities in line with the function and dynamics of each stakeholder. Commercial promotion is a good example on how the project delivers information to potential customers through mass media, participation in regional fairs and the development of promotional events. This cooperation is carried out directly with regional wholesalers, so that it includes the participation of local retailers, benefiting different sales channels with a unique action. In this sense, it has participated in more than one hundred fairs in at least ten regions of the country, reaching about 10,000 people. In the same direction, more than 500 hours of radio promotion had been broadcasted for retailers of EATs, reaching to more than a hundred of districts in the country through fifty local radios.

Another impulse is given in the technological field, in the commercial introduction of technologies to the Peruvian market, action that is developed hand in hand with international importers, distributors, and manufacturers. This is the case of 3G solar systems, whose commercial launch in the country in 2011 was accompanied by EnDev/GIZ Peru, carrying out validation studies on

more than twenty technologies, recollecting as well its socioeconomic impacts. To date, about 15,000 units have been sold, even venturing into Bolivia. Similarly, the project has introduced portable wood-burning improved cookstoves, which allow accessing to cleaner cooking at a cost of 30 dollars, hence reducing the barrier of products close to a hundred dollars. Thanks to this, nearly 2,000 units have already been imported, which are being sold in more than five regions.

At the assemblers' level, the project has provided more than 200 trainings for local technicians and entrepreneurs, as well as business management lessons for retailers. Moreover, business networks have been generated among actors within the chain of improved cookstoves, factor that has strengthened the collaboration among them, putting competition aside, in a growing market.

#### OTHER ELEMENTS FOR STRENGTHENING

At the institutional level, EnDev/GIZ Peru cooperates with universities and research centres to generate evidence and technical standards that serve to regulate the sector. Alliances have been entered with the public sector, so that, from a promotional role, they contribute to raising awareness on the demand. This is the case of the "Tambos" programme of the Ministry of Housing that offers webinars and fairs with technological demonstrations. In this sense, the objective is to overcome the gap that exists in access to information in remote rural areas, where Tambos is presented as spaces for population convocation and articulation for many commercial actors.

In the line of alliances, the project has started developing the first new green portfolios in the microfinance sector, facilitating access to financing for EATs demand. This "win to win" alliance, which includes two markets that share a similar target public and that can maximize their profitability and impact with the cooperation, will be deepened in the article "Microfinance for energy access", present in this issue of Amaray.

Finally, access to direct financing has been achieved for supply actors, a factor that has been possible due to initiatives for market growth, such as FASERT and FIDECOP, which impulse goes from technological commercialization and innovation to boosting the market of technologies of renewable thermal energy.

Since June 2009, the project has cooperated in the direct sale of more than 100, 000 technologies.

**NATIONAL LEVEL**

10 IMPORTERS  
10 MANUFACTURERS



**REGIONAL LEVEL**

5 LAST MILLE ENTREPRENEURS  
OR LOCAL RETAILERS



**LOCAL LEVEL**

50 LAST MILLE ENTREPRENEURS  
OR LOCAL RETAILERS  
15 ASSEMBLERS



POSSIBILITY OF  
CONSTANT GROWTH

**BUSINESS EVOLUTION IN TIME**



LIMITED GROWTH AT  
THE GEOGRAPHICAL SCOPE

## PARTNER'S TESTIMONIES

### ENVIROFIT

“EnDev/GIZ Peru has accumulated during the last years great experience in large-scale adoption of improved cookstoves and opening markets of basic energy access technologies. The new alliance with the project has helped us to offer our portable cookstoves through a distribution network of commercializing companies. This has facilitated our entry to the market, since we have salesmen who are familiar with selling new technologies.

Additionally, thanks to monitoring, the large-scale adoption programme of improved cookstoves of EnDev/GIZ Peru, we could evaluate potential areas of intervention and thus manage to locate places of greatest need for change. There are various goals to achieve, our priority is that families know a wide range of products that are affordable and that in a simple way help them to improve the quality of life in their household”.

**Miguel Granados**, Director for Latin America, Envirofit International

### Centro Tecnológico Metalmecánico

“Since I contacted EnDev/GIZ Peru I have been able to improve my volume of sales due to the articulations they carried out between my company and other sales channels, as well as with microfinance institutions. EnDev/GIZ Peru has also supported me with the provision of stock to comply timely with orders, as well as with financing to improve production processes”.

**Wilbert Pulcha**, Manager of Centro Tecnológico Metalmecánico, Arequipa



# Woman and her empowerment for access to energy



ASPEm - Filippo Taddei

With regards to gender, Peru has made significant progress in pursuing equal opportunities. However, there are still obvious gaps, especially for those women living in rural areas. In response to this, the EnDev/GIZ Peru Project is working to empower women by adding them into the distribution chain of basic energy access technologies.

By Alicia Castro, Senior Advisor for the Energising Development Project EnDev/GIZ Peru





A woman carries out promotional activities for sell improved ovens in rural localities.



Veronica Pilco, team member of EnDev/GIZ Peru in a demonstration of the construction and use of improved cookstoves.

Archive EnDev-GIZ



In the last decade, Peru has shown important economic growth, with a National Energy Policy 2010-2040 and a Plan for Universal Access to Energy 2013-2022, being like this in line with the global initiative on Sustainable Energy Access for All (SE4ALL) proposed by the United Nations. However, as country, it is located in the last places in Latin America (after Haiti) in relation to the fulfilment of the universal right of access to rural electrification, energy for cooking and heating, as stated in the study “Universal Access to Energy and Renewable Energies” published by the Consortium for Economic and Social Research in March 2016. Hence, this gap is broader in rural populations.

Due to traditional roles that still exist within households, women are responsible for doing house chores in rural areas without access to services or clean technologies; thereby they are more exposed to pollution and inefficiency from the use of traditional fuels and devices. Given this situation, access to basic energy has favourable impacts on health and on the reduction of time spent in house chores, which may allow women to carry out other activities or even explore the economic field.

In this context and within the gender topic (i.e. equal opportunities for men and women), Peru has approved all international instruments and has enforced a Law on Equal Opportunities and a Plan for Equal Opportunities. There is also progress in the political empowerment field since a greater number of women work as ministers or congresswomen. However, as pointed in the Global Report on gender gaps published by the World Economic Forum in 2015, there are still gaps in education, health and economic opportunities.

The Energising Development Project EnDev Peru, executed by the German Cooperation, implemented by GIZ, has the objective to promote basic access to energy through a market approach, promoting job opportunities for men and women through the distribution chain of technologies. In its expansion stage, the project has set a specific goal to empower woman: “From January 2015 to 2017, it is expected that at least 30 women are empowered by EnDev/GIZ Peru in the distribution chain of basic energy access technologies”. Thus, to achieve that goal, three strategic actions are developed: interinstitutional alliances, capacity building and information management.

### INTERINSTITUTIONAL ALLIANCES

Interinstitutional alliances can be understood as the sum of efforts, this being a key factor when facing really big challenges such as enabling access to energy to populations excluded from the market, and including women in promoted economic opportunities. To achieve this, EnDev/GIZ Peru seeks and establishes alliances with institutions with similar or complementary objectives. One of these institutions is the Global Alliance for Clean Cookstoves (GACC), international institution that states that women as entrepreneurs will generate the change in the market of clean technologies; thereby it has created tools for empowering them. Consequently, in 2014 and 2015, EnDev/GIZ Peru, in association with the GACC and the Visionaria Network, validated a guide for empowering women entrepreneur with a workshop on leadership, business and empowerment, where eleven women entrepreneur from different regions of Peru participated, and professionals from seven institutions from Bolivia and Peru were trained as facilitators in the use of the guide.

This year the project established an alliance with Chakipi Acceso, social company managed by the Clinton Giustra Enterprise Partnership, which empowers women to improve their quality of life through the distribution of goods for basic necessities. This alliance aims to distribute improved cookstoves and ovens as well as solar lamps in Puno and Cusco, through a network of women entrepreneurs. In this context, EnDev/GIZ Peru provides advice to the network by delivering raising awareness talks, developing communication materials (catalogues and factsheet of technologies), carrying out workshops to develop social and commercial skills and attending fairs to promote technologies in order to reinforce sales pitches of women entrepreneurs. Likewise, in this first stage potentialities and difficulties of the initiative were identified to then enhance a joint plan.

Similarly, EnDev/GIZ Peru started a partnership with Pro Mujer, leading organization in the region, to support women with financial services and business training. The objective of this alliance is to include energy technologies in the credit portfolio and to grant loans to women who undertake a business with these technologies. In a first stage, the project has been offering technical assistance to credit advisors to provide them with the necessary information to ease their work with entrepreneurs.

The project promotes job opportunities for men and women through the distribution chain of technologies.



Finally, the Latin American Energy Organization (OLADE) has become an important ally of EnDev/GIZ Peru to position gender issues in the energy sector of the country, since it elaborates a “diagnosis on the inclusion of the gender approach in institutions of the energy sector in Peru”, on its part EnDev/GIZ Peru will provide the necessary support to make results visible and demarcate the route to follow.

### CAPACITY BUILDING

The participation of woman in different areas and training modalities influence directly in her empowerment and leadership as managers of energy services in their communities. Since the beginning of its activities in 2009, EnDev/GIZ Peru has strengthened the capacities of 406 women as operators in the installation of improved cookstoves and as electricians through workshops. These women have been working in activities that for long were considered for men. As well, women entrepreneurs have been trained with workshops aimed at business management (business model, business plan, marketing plan). Added to the aforementioned, the project promotes spaces for articulating with other stakeholders in the distribution chain of basic energy technologies, seeking like this to expand their business opportunities.

This year, a total of fifteen women have actively participated in the various links in the value chain of basic energy access technologies, either as manufacturers (one), assemblers (two), distributors of technologies

(one) or point of sales (eleven). In addition, five women have become their companies' legal representatives.

### INFORMATION MANAGEMENT

Systematize and make visible the actions that men and women perform to achieve basic access to energy is an essential activity for EnDev/GIZ Peru. Therefore, the project launches every two months “emprEnDev”, the entrepreneurs' newsletter, which presents videos about stories of success, which are published in this edition of Amaray magazine. These stories show the contribution of women in activities that were previously consider for men only, thus contributing with the demystification of traditional gender roles.

Similarly, through the virtual platform developed by OLADE, this year a series of webinars referred to basic access to energy topics were carried out, and have been complemented in a second stage with gender and energy topics, where both, women specialists and entrepreneurs were invited to share their experiences. The interest to propose this format, where an entrepreneur was included as part of the technical space, was to determine the factors for their success as well as the difficulties faced. In this sense, it is important to illustrate and learn from the process that accelerates or slows the empowerment of women in the distribution chain of services and energy access technologies, so that it is possible to improve the strategies for their strengthening.

Since 2009, the project has strengthened 406 women in the installation of improved cookstoves and as electricians.

In the locality of Chivay, in Arequipa, women advisors promote access to energy through microfinance.





Archive EnDev-GIZ

Industrias Yopia, in Cajamarca, is one of the companies that has been strengthened by the project.

## PARTNER'S TESTIMONIES

### Ministry of Housing, Construction and Sanitation

“Now, thanks to the alliance between Tambos and EnDev/GIZ Peru, the population located in dispersed rural areas has better possibilities to adopt technologies that improve their quality of life. For that, EnDev/GIZ Peru specialists offer their experience and knowledge, talk and resolve queries, making use of the virtual platform and the satellite internet networks of the Tambos National Programme”.

**Miguel Arestegui Matutti**, Responsible for the Unit of Prevention and Mitigation of disasters, Tambos National Programme from the Ministry of Housing, Construction and Sanitation.

### Latin American Energy Organization

“For OLADE, the alliance with EnDev/GIZ Peru is important, because it contributes with the strategic component of knowledge management and the diffusion of case studies in the region. Jointly, we present and spread concrete experiences to promote access to secure and clean energy sources, equally for men and women. In this sense, we will continue strengthening this alliance as well as providing tools to incorporate the gender approach in energy projects”.

**Sissy Larrea**, Advisor for Gender Equity, Latin American Energy Organization.



# Happiness for having an own business

Tomasa Yopia and Lucerito Julián are two mothers from the region of Cajamarca and San Martín. Each of them has made their way in a sector traditionally dominated by male work, giving rise to companies that offer products for basic access to energy, mainly, improved cookstoves. Like this, they have turned into a success story, thanks to years of effort and dedication.

By Carlos Bertello, Editor of Amaray Magazine

Archive EN Dev.GIZ

Lucerito Julián Castrejón (with her husband) shows one of the improved cookstoves models offered by Enerselva.

## “We have come to have a leading and recognized company at international level”.

“I am Lucerito Julián Castrejón, I am 35 years old; I am mother of four children and live in Soritor, Province of Moyobamba, in the Region of San Martin. Six years ago, I engaged myself in the construction and trade of improved cookstoves. I started working as installer for a private company, then I worked with the GIZ and now I have my own company called Enerselva.

I started with improved cookstoves, because I realized that most mothers did not know them and saw an opportunity for change, especially to save firewood and time when cooking. Before, I worked in the field and earned ten soles per day. Then, once I learned to build an improved cookstove doubled my daily income. Thus, I started gaining experience and now I am recognized in the region and I am doing well. Moreover, with time I convinced my husband to enter in the business too.

Initially, we offered the product at home, visiting each mother door-to-door, which we continue doing, but we also respond orders from some municipalities. If I look back, I see that we have grown a lot. Whenever there is an opportunity, we take advantage of trainings offered by EnDev/GIZ Peru, and with other women, we believe they have strengthened us at personal and commercial level.

We also know other entrepreneurs like us, with whom we share our experiences and with some have reached agreements to take the products forward. We not only sell improved cookstoves, but we have entered into the solar lamps business.

To grow, we have had to overcome difficulties: as when the Inkawasi cookstove did not adapt to the jungle for the reduced size of the combustion chamber; or the fact of having family and not being able to take care of them adequately for not having sufficient economic means; or when we did not have the know-how to set up a company; or face periods of low sales due to plagues that affected coffee growers.

In light of the above mentioned, we have come to have a leading and recognized company at national and international level, which has a stock of materials that allows us to offer different models that adequate to the reality of each area. In addition, selling solar systems was something that helps us to generate greater income.

I have learned to value the efforts and to understand that with dedication everything can be achieved. Women, to succeed, we need to have the decision, dedication and effort to achieve our life goal, and especially, with the support of our families to face the challenges that arise every day”.

**Lucerito Julián Castrejón**, Manager of Enerselva, San Martin.



“Every woman should be persistent in what she likes and I know she will achieve it”.

“My name is Tomasa Yopía, I am 53 years old and I was born in Cajamarca. I have my company Industrias Yopía, and I am the general manager. It is a family company that we work with my children and husband. We manufacture improved cookstoves accessories in Cajamarca and could say: at national level.

When we started in 2009, we had an order of 18 chimneys. It was our first order and did not have experience. My husband refused the job, but I looked for someone to do it and was able to deliver it on time. Then, I was reliable and was given a new opportunity to provide 1600 chimneys. This was a challenge for me, that my husband and I managed to achieve and realize how profitable it was. Then, we decided to set up our business of improved cookstoves.

We heard that there was a market, so I started approaching nearby and far institutions to offer my products. Once I left my card, I had to call them and like that I started generating orders and making myself known. I never imagined that the job of improved cookstoves will make us get through, and that all my family, all my children will have a job. I never thought to achieve all that I have, and I have walked a lot to get it. Besides that, as a woman, leaving our children sometimes at home was very difficult.

Today, we not only work in the region of Cajamarca, but we have expanded to other regions that are up to 30 hours away, but for us there is no problem, we arrive as we can. Communication is via the internet and many times we have to travel first to close the deal and then go ahead with the order. So far, we have not failed to carry any.

When I go out to the field to leave materials, I visit the ladies in the houses who cook in open fire and sometimes I donate a cookstove that I installed myself. Also, if I have a big order, I donate some kits for people that are not on the list. My concern is that families take care of their health and their economy with these cookstoves. The truth, I think it is something that all Peruvians should have at home: our improved cookstove.

The experience with EnDev/GIZ Peru was something very nice. I was invited to Tarapoto for training. I have always wanted to know the jungle and spent a week with other women learning about the business. Also, knowing other women who are starting up helped them to defeat their fears and not be afraid to go to work, because there is always machismo at home, but women lack for nothing to get ahead and achieve what they want.

For all the above, I am grateful with EnDev/GIZ, because since 2009 it has always invited us to participate. There I see women that are often asleep, but this makes them wake up, makes them walk, because we need this, we need our morale to be raised, to move forward. So, every woman has to be persistent in what she likes, and I know that she will achieve it, because I have achieved it: I was looking for something that I liked, I have persevered and feel that I have found it. I believe that every woman can obtain what she needs and wants for her happiness.

On our side, in our company we give opportunity to men and women, because the work is the same for both. Women do not complain, they are more punctual and can manufacture an improved cookstove. Moreover, every woman makes 400 hoots per day, while men make 300 or 350, so I feel happy to give a job to both men and women”.

**Lucerito Julián Castrejón**, Manager of Enerselva, San Martín



Tomasa Yopia manufacturing a hoot for the chimney in her workshop in Cajamarca.

## EnDev/GIZ Peru

“We have a very clear instruction, which is to continue identifying women willing to work with us”.

“The Energising Development Project - EnDev Peru, executed by the German Cooperation, implemented by GIZ, looks forward to work in accordance with the principles of gender equity, meaning, not only seeing women as beneficiaries of energy access technologies, but seeing them as part of the distribution chains and generators of companies for market development.

Throughout these years, we have managed to involve both women and men in each of the links of the distribution chain, so that they benefit not only economically, but socially by their participation. Although it is true that participation is mostly male, we see important to continue promoting and strengthening the role of women in this area. In that sense, we have managed to involve women mainly in the area of energy for cooking (more than in the area of rural electrification). The effort is constant and we have a very clear instruction, which is to continue identifying women willing to work with us and we look for that they are interested in the calls to begin with activities or entrepreneurship.

I think it is important to teach with examples like the experiences of Lucerito Julián Castrejón in San Martín and Tomasa Yopía in Cajamarca, because although it is an area dominated by men, existing companies tend to look for profiles of “engineers”. However, women have great potential to develop both profitable businesses and to promote social inclusion, as they have great sensitivity. For that reason, one of the challenges at Latin American level for women to participate more in the business field in the energy topic is to develop awareness-raising spaces, so that managers stop seeing women only as beneficiaries and start recognizing them as allies to be able to sell their products”.

**Ana Isabel Moreno**, Director for the Energising Development Project EnDev/GIZ Peru



# Fair trade with p

FairMail is a social company that motivates young people to take photographs that can generate income for their future. For that, the company offers teenagers photography workshops, a medical fund and advice to develop their future plans. As well, young people receive 50% of profits from the sales of their own cards to finance their education.

Photos offered for sale are taken by low income adolescents from Peru, Morocco and India. In Peru, kids come from different places: some live in a home for children called “Mundo de Niños” and others come from El Milagro, a poor area in Trujillo, a landfill, where many families work in recycling.

The initiative was founded in 2006 in Peru by Dutch sociologist and businesswoman Janneke Smeulders. Then, a year later, her husband Peter den Hond joined the company. At present, both manage the international office traveling among different branches, while in Peru, FairMail is in charge of two young Peruvians, who were part of the project since the beginning.

One of the project’s strengths is that young people are trained by volunteer photographers coming from different parts of the world. Thus, as each volunteer has different backgrounds and a unique way of working, adolescents are permanently in reach of new skills and perspectives.

Likewise, the experiences indicate that each volunteer values his/her experience as a very especial and useful way in the pursuit of their careers. Kristel Feys, Belgian photographer, who volunteered in Peru in 2015, stated: “Working at FairMail was a unique experience. I was able to know teenagers, see their creativity and motivation and to support them in their work in a very dynamic and fun environment. Fellowship among adolescents, and the team made by the management and volunteers is something quite special. I learned a lot from this community and from Peru, and it was an unforgettable experience”.





# Photographs



Dhiraj Kannaujia, 24 years old, Varanasi, India.





Krishna Vishwas, 17 years old, Varanasi, India.



Yo



Elmer Machuca Chacon, 23 years old, Trujillo, Peru.



Kaushal Kumar, 20 years old, Varanasi, India.

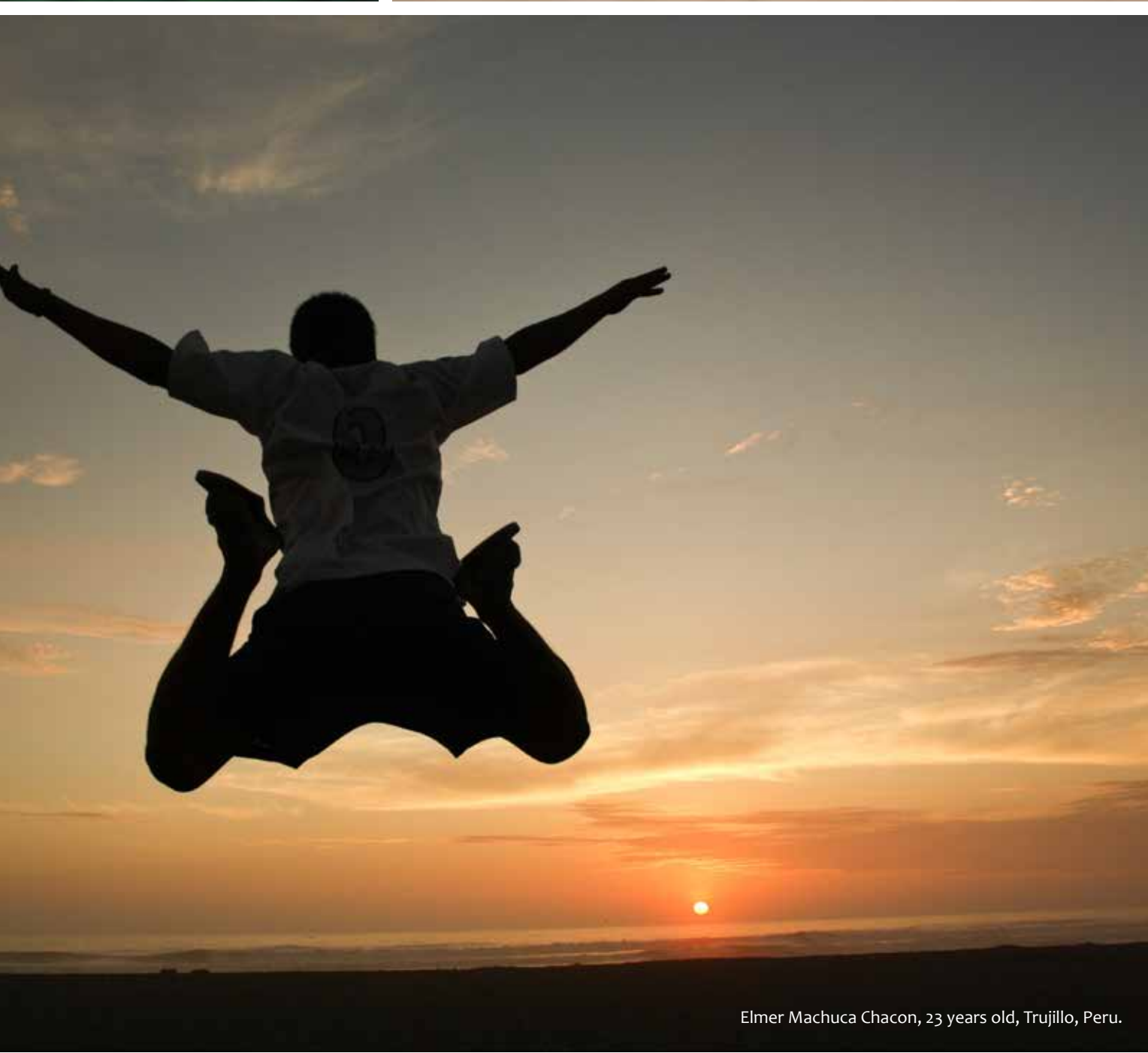




omira Flores Angulo, 19 years old, Trujillo, Peru.



Anil Kumar, 21 years old, Varanasi, India.



Elmer Machuca Chacon, 23 years old, Trujillo, Peru.





Anil Kumar, 21 years old, Varanasi, India.





Elmer Machuca Chacon, 23 years old, Trujillo, Peru.



Elmer Machuca Chacon, 23 years old, Trujillo, Peru.

## FairMail

Since 2006, FairMail has sold 3 million of postcards in 14 counties, making possible that 55 young photographers earn 165,000 Euros to invest in their own education.

It is possible to acquire the postcards and to know more about open positions and volunteering experiences in FairMail through its website or writing to: [voluntario@fairmail.info](mailto:voluntario@fairmail.info)

[www.fairmail.info](http://www.fairmail.info)



# Microfinance for energy access

Since the end of 2011, EnDev/GIZ Peru has been promoting the opening of credits for accessing energy in many microfinance institutions in the country; an initiative that is closing the gap for accessing green technologies for low-income populations in rural areas. Additionally, the project seeks to strengthen suppliers of such technologies.

By Juan Carlos Quiroz, Technical Senior Advisor for the Energising Development Project EnDev/GIZ Peru







A married couple show a solar water heater that was purchased thanks to microfinance.

While it is true that microfinance is not the remedy to cure poverty, nor that with its implementation social inclusion of the most needy will be achieved, it can be a tool to approach these objectives. For example, with them it is possible to achieve a sustainable reduction in the gap of universal access to energy. Said sustainability is generated since the strategy is not based on donations, but on recovering the funds invested and through profitability obtained with interests. However, not all microfinance institutions (MFIs) welcome the development and implementation of a credit portfolio for the acquisition of energy access technologies, mainly due to the lack of properly formalized and market-positioned suppliers, i.e. offer appropriate service, distribution, installation and after-sales service proposals.

This fact has been the main obstacle faced by EnDev/GIZ Peru and its partners to promote energy supply portfolios within MFIs. Thus, activities have been identified and developed in order to improve the manufacturing process and the business chain of technologies, therefore reliable suppliers with proposals to venture into opening credit portfolios for basic access to energy may be presented. All of this, on the search of turning them into priority stakeholders in the development of the market of said technologies.

In this sense, since the end of 2011, EnDev/GIZ Peru promotes the inclusion of credit portfolios for energy access in different microfinance institutions of the country. Initially, this was due to a joint action with Appui au Développement Autonome (ADA) and MicroEnergy International (MEI), through the initiative “Energy inclusion through Microfinances”, which applies a business model directly related to the supply chain of technologies, so that they are promoted in the business platform of two MFIs: Savings and Credit Cooperative FONDESURCO and the Huancayo Savings and Credit Cooperative.

“According to the model, close and long-term relationships are established between microfinance institutions and suppliers, so that the interests of both are aligned and they are capable to fulfil specific functions that facilitate the implementation of the project involved stakeholders, and then with their own strategies for strengthening the business chain, creating a link between manufacturers

Since the end of 2011, the EnDev/GIZ Peru Project has been promoting the inclusion of credit portfolios for access to energy.



and importers with small local points of sales, for better and timely attention in mainly rural places. Throughout the intervention, tools and supporting materials have been elaborated, which have contributed to facilitate the implementation of MFIs and promote technologies among customers”, states Natalia Realpe, expert from MEI.

In this context, to name some specific actions with suppliers, plans for decentralizing customers service through the opening of new service and sales points, were created in various regions of the country (different from their origin) as well as financial support for improving their production capacity.

Furthermore, replicas have been made with other MFIs by applying a more traditional model, that is, where the responsibility of the commercial chain of technologies lies on the suppliers and credit evaluation is in charge of the MFI. The model is based on a business agreement between two stakeholders, where cross-trainings between them are emphasized. These trainings consist, on the one hand, in training credit analysts on the benefits, characteristics and maintenance of technologies, which are carried out by the technicians of the suppliers; and on the other hand, in training the staff of the suppliers on credit processes, which are taught by the MFI. Thus, the objective of these cross-trainings is that both parties can do a quick pre-evaluation of the interested customer, before moving onto the effective credit evaluation.


Similarly, EnDev/GIZ Peru has been implementing the project “Boosting the Market of Solar Water Heaters in Peru”, which groups trading companies, granting them monetary incentives in order to cover additional costs from servicing new markets, especially in the rural as another way to articulate the market of energy technologies and MFIs. Besides that, these incentives are used to improve the supply of other energy technologies, which are commercialized in the microfinance sector. Likewise, the project also channels economic incentives for credit placements for MFIs that have created green credit products, which are used in the creation of internal incentive or promotion plans. Furthermore, it has the participation of the Municipal Savings and Credit Banks of Arequipa, as co-implementer, factor that allows creating precedents for developing projects related to energy in the financial sector.

In conclusion, the development of these strategies has allowed that, since 2012, about 1,450 credits for improved cookstoves and ovens, as well as for solar water heaters and dryers of agricultural products are granted, with the participation of eight microfinance institutions in ten regions of the country. It is worth mentioning that although these figures do not allow us to affirm that credits for energy access technologies are profitable and therefore sustainable, they do provide us a positive outlook for the future, as we can assure that microfinance is a tool that will shorten the gap of universal access to energy and, consequently will generate a decrease in poverty.

The project also channels economic incentives for MFIs that have created green credit products.

Chivay, a locality in Arequipa, presents optimal conditions for using solar technologies.



A photograph showing a man in a green shirt and glasses, identified as an advisor from FONDESURCO, interviewing a woman. The man is holding a notebook and a pen, looking down at it. The woman is wearing a grey sweater and a red headscarf, looking towards the man. They are outdoors, with a brick wall and some greenery in the background.

An advisor from FONDESURCO interviews a local customer.

Archive EnDev-GIZ

## PARTNER'S TESTIMONIES

### Appui au Développement Autonome

“When we decided to start the two projects with Caja Huancayo and Fondesurco for developing green microcredits, we needed to find a local partner that could provide both MFIs with the necessary technical assistance in relation to selected technologies; solar water heaters, improved ovens and solar dryers.

From the beginning, the knowledge and experience of EnDev/GIZ Peru were highly valuable; they accompanied closely MFIs, conducting quality tests of technologies at renowned universities and in the field; conducted MFIs in the negotiation with suppliers; and finally provided advice throughout the implementation of the project to solve the challenges implied in the distribution in rural areas.

At present, both MFIs learned from this experience and continue expanding their technology supply to rural and peri-urban populations in the country”.

**Carla Palomares**, Responsible for Projects, Appui au Développement Autonome

### Savings and Credit Cooperative FONDESURCO

“EnDev/GIZ Peru has played a relevant role in the identification and validation of green technologies, adapted to the needs of our partners and the difficult conditions of the rural area. Its constant support has enabled us to make green products reachable, allowing us to reach more partners, which were excluded from this type of supply through the RBF project. As institution, we are grateful that GIZ is part of Fondesurco's strategy to consolidate itself as a global reference for green credits”.

**David Vela Quico**, Manager of the Savings and Credit Cooperative FONDESURCO



# Paths to sustainability

Given the difficulty of access to rural areas, an adequate strategy is essential to increase sustainability of access to energy.

Archive EnDev-GIZ

Although the protagonist of change is the user, in contexts of social vulnerability, the State shall guarantee access to energy in a universal and equitable way. Thus, to measure the sustainability of this access, EnDev/GIZ Peru proposes an analysis related to the political environment, the behaviour of demand and supply, as well as environmental impact.

By **Ileana Monti**, Technical Advisor for the Energising Development Project EnDev/GIZ Peru

Achieving real sustainability is one of the most important challenges of development projects. This means, to prioritize a long-term vision of development under two interrelated concepts. On the one hand, sustainable development, which proposes to use world resources responsibly, preserving them for future generations and, on the other hand, sustainability of actions, which suggests achieving long lasting capabilities and benefits to meet needs. Thus, a project is sustainable when its positive impacts remain in time and contribute to improve the quality of life without harming the environment.

Within this framework, EnDev/GIZ Peru promotes sustainable access to modern energy. Therefore, to measure sustainability, it proposes a group of factors and sub-factors related to the political environment, the behaviour of demand and supply as well as environmental impact. Under this approach, EnDev/GIZ Peru evaluates sustainability with different methodological designs that permit measuring the multidimensional nature of the concept: telephone surveys to installers, face-to-face surveys to users, in-situ verification of the construction of improved cookstoves, the analysis of dual access and cohabitation of technologies, as well as performance tests of cookstoves. Thus, the variety of methodological instruments as questionnaires, tests, in-situ observation and statistical analysis applied to random samples allow ensuring accuracy in the treatment of data.

From the studies carried out in Peru, we present the following reflections on sustainability of access to energy: First, informing users on the benefits of technologies is essential, but it is not enough to adopt them. Second, monetary and non-monetary incentives are important to motivate users. Third, the adoption of changes is neither linear nor dichotomous, but depends on the needs and variable resources of users. Now we will see each point in detail.

## 1. USEFULNESS OF DISSEMINATION OF INFORMATION

Knowledge and information are important. People, all of us, have imperfect information, so reporting on the benefits is a key step towards the adoption of a new service. In studies carried out in different regions of the country, around 85% of user declared that from the information disseminated by the

project, they now know about the relationship between smoke, firewood and health problems generated by traditional cookstove in comparison with improved cookstoves. Hence, they use this information to declare that with improved cookstoves they perceive less burning in the eyes, less cough and use less firewood for cooking. In addition, the most interesting element is that most of users are willing to continue using their improved cookstove.

However, these optimistic results contrast with barely 15% of users who have repaired or replaced their broken improved cookstoves. Accordingly, the majority of users state that lack of replacement is due to poor information on how and where to do it. Similarly, in the case of users that had access to after-sales services, they declared that it did not meet their needs adequately.

Finally, some households preferred repairing their cookstoves themselves or contacting an acquaintance who knew how to do it. The contrast of results invites us to reflect that intention is not always translated into action. While people appreciate the value of an improved cookstove, even so, not all can afford to buy a new one or repair the existing one.

## 2. INCENTIVES FOR DECISION-MAKING

Information is not always enough for making a decision and many times something more is needed. For example, various studies show that users who changed their deteriorated improved cookstove emphasized that they bought another because it offered new functions, as an oven. Other users, who had their first improved cookstove from a State subsidy, decided to buy one when they knew that other models of improved cookstoves are being sold in the area. Also some sellers offer small improved cookstoves at a reduced price for purchasing more expensive products, such as a solar water heater.

We can see that incentives, such as low cost, subsidy or more attractive technology models encouraged the purchase of a cookstove and, even more interesting, motivated the replacement or acquisition of a second technology. Some authors, as Thaler y Sunstein in their book Nudge: improving decisions about health, wealth and happiness (2008), consider that temporary inconsistency

From the studies carried out in Peru, we present the following reflections on sustainability of access to energy.



is a characteristic of human behaviour, which shall be taken into account in the strategies of development programmes. Under this approach, monetary subsidies are not a problem; in fact, they may be a “push” to achieve change. In conclusion, some incentives such as donations or subsidy to a technology reduce the complexity at the moment of making the decision of acquiring little-known technology for low-income users who would otherwise take too much risk when buying it. Moreover, other incentives, such as technological innovation, motivate users to buy a new cookstove that meet their needs.

### 3. INFORMATION AND INCENTIVES IN A FAVOURABLE ENVIRONMENT

High rates in the use of modern energy go hand in hand with another important fact: in households various appliances are used for cooking and lighting. For example, to cook a fast breakfast, lots of people prefer the gas cookstove or the traditional open fire because of their easy ignition. In contrast, to cook large quantities of food on a holiday, they prefer the traditional open fire because it supports huge pots and fuel is less expensive than gas; meaning that users justify the use of different cookstoves, depending on their needs.

This versatility to use different modern devices is important because for poor users, a change in context or an unexpected family event, may seriously affect the economy of their household and thus the resources available for energy services. While in poor environments the market of devices helps to improve access to modern energy, the State is responsible for guaranteeing basic access to energy. The State has a key role to regulate, inform, research and establish clear rules that ease a better operation of the market for the poorest.

In summary, there are many paths to sustainability. Thus, information dissemination, device innovation and monetary incentives are tools for the user, which allow making more accurate decisions. Likewise, although the protagonist of change is the user, in contexts of social, economic and environmental vulnerability, the responsibility is mutual (differentiated, but shared). Therefore, we should recognize that continuity of achievements will depend not only on the good decision of the user in a developed market, but also on the facilities promoted by the State, understanding that, at the investment level, resources may be recovered through the reduction of diseases and the increase of the income of the poorest.

Some incentives reduce the complexity at the moment of making the decision of acquiring technology.

Carsten Hellpap (on the right), General Director of EnDev, in a field visit together with beneficiaries from the project in Cajamarca, Peru.



Archive EnDev-GIZ

Providing information to communities is vital in the search of sustainability.



Archive EnDev/GIZ

## PARTNER'S TESTIMONIES

### Ministry of Energy and Mines

“Since the beginning of the development of NAMAs (Nationally Appropriate Mitigation Action) of Energy, EnDev/GIZ Peru has been a key partner and ally, which was formalized with a collaboration agreement between EnDev/GIZ Peru and DGEE-MINEM in 2015, which was expanded in 2016 to include the Energy Namas project. Its wide experience at national and international level, as well as access to networks of technicians, studies and funds related to four NAMAS, has been invaluable, especially with respect to NAMA 3, about sustainable energy solutions in rural communities”.

**Daniella Rough**, Energy NAMAs Coordinator, General Directorate of Energy Efficiency, Ministry of Energy and Mines

### TECSOL ENERGY

“Years ago, technologies as solar water heaters, solar panels, controllers, etc. were not widely known in the market. When we received the technical assistance of EnDev/GIZ Peru, we agreed to a type of results-based incentive, which allowed us to invest in promotion, publicity and awareness-raising of energy access technologies, a factor that contributed to promote better technologies and raise awareness on population of their benefits. Also, creating commercial links with companies from other areas of the country has helped us to expand the market and create new sources of income. In this regard, EnDev/GIZ Peru's support has been very helpful in identifying new allies within our marketing chain”.

**Luis Díaz Cuentas**, General Manager of Tecsol Energy



# Visionaria leaders, empowering agents of change

Since 2013, this international programme works with a development approach that recognizes the importance of women in the transformation of society, especially in the energy sector. Furthermore, it states that if improving the conditions of women is sought, man should not be excluded from the process.

By Paul Spurzem, Executive Director for Visionaria Network and Paola Saldivias Mendez, Andean Regional Manager for the same organization

Visionaria programmes seek to involve women in the energy sector.

Since 2013, Visionaria Network has been developing training programmes and educational resources for both female energy entrepreneurs and students to focus their visions, set smart goals, and strengthen their ability to overcome negative thoughts. This process has powerful implications for personal and career success.

### **EMPOWERMENT RESOURCES FOR THE ENERGY SECTOR**

We know that women play critical roles in scaling the adoption of clean cookstoves, fuels, and other energy products used in the home. Women make household decisions and are typically the primary cooks, yet their input is surprisingly absent from many efforts to promote the use of cleaner stoves and household energy products.

In 2013, the Global Alliance for Clean Cookstoves (GACC), international organization that has a tight relationship with Visionaria Network, published a “Resource Guide on Scaling Adoption of Clean Cooking Solutions,” including case studies that illustrated how women strengthen the value chains of clean cookstove companies (in their design, manufacture, sales, distribution, and after-sales service). However, women still face unique constraints regarding access to education and unequal economic opportunities, and unequal pay, which inhibit their aspirations and abilities to reach their personal and professional goals.

In response to the socio-emotional challenges faced by female entrepreneurs in the clean cookstove sector, the GACC developed another tool: the “Empowered Entrepreneur Training Handbook”. This training handbook includes “empowerment” and “leadership” activities in addition to traditional business topics, to enhance the effectiveness of female entrepreneurs and sales agents in the energy sector. As well, empowerment and leadership lessons are not only good for adult women workers and entrepreneurs, but also for students who want to have a say in their future, and the future of their communities.

### **EMPOWERMENT RESOURCES FOR STUDENTS**

Recognizing students as our next generation of leaders, it is important that they are aware of their energy options, and other decisions being made today that impact the future of their communities and the world.

There is a great opportunity for youth to help design more effective development solutions, and for professionals to provide students with real-

world project experiences that solidify new socio-emotional and professional skills.

Visionaria Network, an international non-profit organization from the U.S., has partnered with educators and NGOs in the Cusco region of Peru to introduce an educational curriculum using similar empowerment and leadership lessons for youth.

Instead of setting goals related to their work or business, “Visionarias” (Visionaria programme participants) are encouraged to set visions and goals around various areas of their lives – such as their studies, careers, family, and community. Participants learn about local and global challenges through lessons about the United Nations’ Sustainable Development Goals. Then, building from their visions and new knowledge, Visionarias design and implement a sustainable development project, in collaboration with local NGOs, government actors, and other community stakeholders. Through this process they put into practice and solidify the empowerment and leadership lessons learned, while being recognized as leaders and change makers in their communities.

### **A PLACE FOR MEN IN “WOMEN’S EMPOWERMENT”**

Visionaria programmes focus on girls, but they do not exclude men or boys. When working through “Sex and Gender” activities with female clean cooking entrepreneurs and students in Peru, Visionaria Network’s Master Facilitator, Paola Saldivias, explains the importance of promoting a nature of cooperation: It’s not uncommon for girl participants to arrive at the question, “why not include boys and men in activities to change the situation for women, seeing that men are an important part of the solutions, and not just the problem? And this is exactly what we want them to think.”

Visionaria programmes aim to provide safe spaces for young women to find and express their voice, in a way that does not negatively portray the opposite sex or perpetuate inequalities. Monitoring the changes in relations between men and women, the Gender Impacts, have become a critical focus in development efforts, recognizing that women and men are both affected by any social action.

If we want to improve the conditions of women, we cannot exclude men from the process. Approaches that engage men and acknowledge the importance of their role in transforming our societies are promising - both in general, and particularly in the energy and development sectors.

**Visionaria programmes aim to provide safe spaces for young women to find and express their voice.**





### SHARED VISIONS

By supporting women and girls to develop and share their visions, and equipping them with tools and support mechanisms to achieve them, they are empowered to control their destiny, transform gender norms, and to accelerate progress in in our communities and industries.

Be careful not to miss resources and opportunities to support the “Visionarias” in your life and work - Visionarias have dreams for their future and plan for success with creativity and confidence.

The initiative promotes empowerment and leadership activities for women.

## Visionaria Network

Visionaria Network is an American non-profit organization working to promote a Visionaria brand of learning and leadership that enables young women to be confident social innovators in their own lives and communities.

Visionaria Network works through partnerships and programmes at the nexus of gender, education, and sustainable development. Visionaria Network combines classroom curriculum with real-world social innovation projects to build girls' self-confidence and self-awareness. Visionaria Network's programmes and support, in-person and online, promotes the practice of the acquired knowledge. Visionaria (feminine, noun): One who has dreams for the future and plans for success with creativity and confidence.

Visionaria Network is constantly seeking new partnerships that engage youth in sustainable development projects, and that can strengthen a Visionaria spirit among women and girls.

[www.visionarianetwork.org](http://www.visionarianetwork.org)





Promoting products and knowledge for basic energy access is an essential part of the programme.



