

December 2017

Amaray

Energy and development for rural areas



EnDev Peru

10 years providing energy
to rural populations

Energy Access Policies

Seeking to close the gap in
access to energy by 2021

We have walked Peru...

Candarave, Tacna

The EnDev Peru Project was present in the heights of Candarave, in Tacna, providing better access to productive uses of energy. This is the portrait of two settlers who acquired solar dryers for their crops.





Working for the present...

Lamas, San Martín

In the native community of Wayku, we could meet families that lacked a suitable means to cook their food. Given this situation, EnDev Peru provided the use of improved cookstoves, providing health and well-being for all the family.

And for the future...

Cajabamba, Cajamarca

We had the opportunity to attend different towns in Cajamarca, in the northern highlands of Peru. There, we met many women who were benefited with the arrival of electricity to their households, affirming with that a better future for their youngest children.



People from different localities from rural areas in Peru did not hesitate to open their doors to development proposals provided by the Project.

Dear readers,

we come once again to you to present a new edition of Amaray magazine, focused on the ten years of our work in Peru. We are very aware of the faces of people who have benefited from the work of the project, since they were the ones that motivated us to take the path of offering a hand through access to energy.

These are stories that accompany us, lived in hundreds of towns, highlighting that due to EnDev Peru, access to energy has been facilitated to almost one and a half million people throughout the national territory. These stories go from families that got rid of smoke from their households with improved cookstoves; received energy for lighting at nights; or could finally have hot water in their households to people who managed to start a business by selling photovoltaic systems or gave a boost to their lives from the productive use of energy, either individually or collectively. Thus, all this ultimately translates into development, health, quality of life, a better future and a little more happiness.

Working hand in hand with various ministries and other institutions focused on fighting against this reality, we bring you in this edition, a recount of the work done by the General Directorate of Rural Electrification, as well as the National School Feeding Programme Qali Warm, together with financing proposals such as FASERT or FIDECOP. Likewise, we tell you about the work of the Collective of Basic Access to Energy and we offer you, as always, new visual impressions in a photographic portfolio of Andean and contemporary cut.

Finally, recognizing that we live in a world that faces common challenges, we do not want to forget to mention the contribution of EnDev Peru in the world, including an article written by our colleagues at the EnDev headquarters, in Germany.

Hoping that our experiences for closing the gap in access to energy may guide you on the rest of the way and offering all our expertise, we thank you for your attention and say goodbye to you.

Sincerely yours,

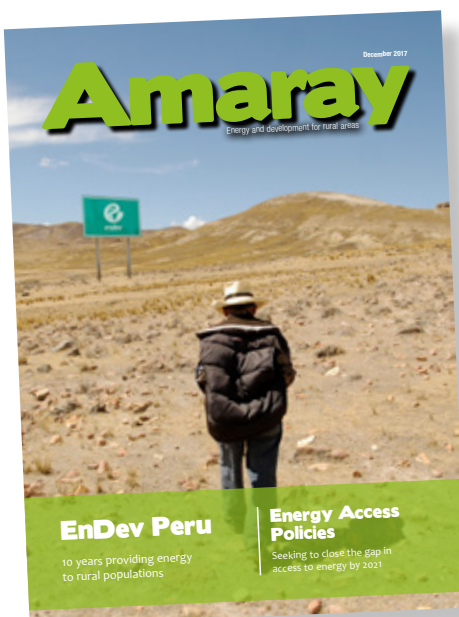
Ana Isabel Moreno Morales
Director for the EnDev Peru Project





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EnDev Peru, 10 years facilitating access to energy



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Portfolio. Alette Bretel
Andean + contemporary

Mitigation actions for universal access to sustainable energy

Implementing mitigation actions against climate change is fundamental for protecting vulnerable populations from the country.

Due to Nationally Appropriate Mitigation Actions (NAMA), the Peruvian Government seeks to reduce greenhouse gas emissions, executing programmes that favour universal access to sustainable energy. For that, the State is committing at the national and international level with the advice of the EnDev Peru Project.

By Javier Campos, General Director of Energy Efficiency, Ministry of Energy and Mines

The Peruvian government has set the goal to reduce by 20% its greenhouse gas emissions with its own resources, within the framework of the Nationally Determined Contributions, of which the energy sector has demonstrated great potential that would help to reach this goal. The General Directorate of Energy Efficiency of the Ministry of Energy and Mines is the focal point of the energy sector before the Multisectoral Working Group for the implementation of Nationally Determined Contributions to climate change and, as well coordinates the implementation of different initiatives such as “Nationally Appropriate Mitigation Actions (NAMAs) on Universal Access to Sustainable Energy”. On the foregoing, the EnDev Peru Project actively collaborates with this General Directorate providing technical assistance.

TOWARDS THE PARIS AGREEMENT

Peru, as member country of the United Nations Framework Convention on Climate Change (UNFCCC) since 1992, takes the commitment to inform the Convention of the actions it has adopted or plans to take to contribute to the global effort to reduce greenhouse gas emissions (GGE). Within the framework of these commitments, member countries agreed to begin or intensify the preparation of their Intended Nationally Determined Contributions (iNDCs) and report them to the Convention at the 19th Conference of the Parties (COP 19), held in Warsaw (Poland).

In this sense, given the commitment of the Peruvian State to identify and communicate its iNDCs, a Multisectoral Commission is created in July 2015, through Supreme Resolution No 129-2015-PCM, in order to prepare a technical report containing iNDCs proposals to be presented before the UNFCCC. In the report, submitted by the Multisectoral Commission, 76 mitigation options were first identified, which represented a total reduction of 89.4 MtCO₂eq by 2030. Of these, 25 options corresponded to the energy sector; once the technical report is approved, it was presented to the UNFCCC in September 2015.

Member countries consolidated their iNDCs in Nationally Determined Contributions (NDCs) in July 2016, with the ratification of the Paris Agreement, at COP 21. They stated their commitment to the international community to face the impacts of climate change and reduce greenhouse gas emissions, in order to limit the increase in the average temperature of the planet below 2°C; within this framework, Peru formally ratifies the Paris Agreement by Supreme Decree N°058-2016-RE.

Once the Paris Agreement was ratified by Peru, and with the aim to generate the necessary tools for the implementation of Nationally Determined Contributions (NDC), the Multisectoral Working

Member countries consolidated their iNDCs in July 2016, with the ratification of the Paris Agreement.



Team (GTM) was created by Supreme Resolution N°005-2016-MINAM. This team is formed by 13 State Ministries and the National Centre for Strategic Planning (CEPLAN). In this sense, the Ministry of Energy and Mines (MEM) through Ministerial Resolution N°383-2016-MEM/DM appointed the General Directorate of Energy Efficiency as the focal point before the GTM, which articulates with different competent directorates the definition and validation of mitigation options, previously identified in the technical report of the Multisectoral Commission.

NATIONAL CONTRIBUTIONS

Peru, shall present its NDCs before the UNFCCC in May 2018, for which to date each competent sector is reviewing and validating the mitigation options previously identified in the report of the Multisectoral Commission. This process tries to develop a tentative schedule, which will group mitigation options in three scenarios: short (2018-2021), medium (2022-2025) and long term (2026-2030); as well as the identification of benefits, co-benefits, actors involved, quantification of emissions, monitoring, reporting and verification system (MRV), among others. The MRV will allow measuring the impact of mitigation options implemented with the vision of evaluating its contribution to the national and international objectives.

The Ministry of Energy and Mines to date is still

in the process of reviewing and validating the mitigation options within its competence. First, they considered 25; however, after the meetings of the GTM and the internal work group of the Ministry of Energy and Mines, some were grouped and others derived, leaving a total of 19.

ACTIONS FOR UNIVERSAL ACCESS

Concerning universal access to sustainable energy, the Ministry of Energy and Mines has the following mitigation options: E1. Combination of Renewable Energies, which establishes the increase of participation in the generation of Renewable Energies Resources (RER) to reach a maximum of 5% of the national electricity consumption, of which the estimated reduction potential is 2.1 MTCO₂eq; E2. Distributed Generation, initially considered the generation of electricity with solar panels; However, this option is being evaluated, since not only solar technology exists, but others, of which the estimated reduction potential is 0.04 MTCO₂eq; and E3. Electricity Supply with Renewable Energy Resources in Areas not Connected to the Grid, this measure is implemented through the installation of photovoltaic systems (solar panels), being this option under review and having an estimated potential reduction of 0.05 MTCO₂eq.

Moreover, within the framework of the Agreement executed between the EnDev Peru Project and the Ministry of Energy and Mines, the EnDev-GIZ Project

Javier Campos, General Director of the DGEE-MEM, handles a solar cookstove during an exhibition of alternative technologies.

supports the efforts that the sector has been carrying out on climate change topics. Thus, since 2017 it provides technical assistance to the NAMA on “Universal Access to Sustainable Energy”, which is financed by the Global Environment Fund (GEF), whose resources are implemented by the United Nation Development Programme - UNDP. The objective of this NAMA is to reduce the rural electrification gap (photovoltaic systems and grid connections) and large-scale adoption of improved cookstoves (improved cookstoves, LPG cookstoves and other) in areas where they are still used. This objective is aligned with the policies and plans of the sector, such as the National Plan of Universal Energy Access approved by Ministerial Resolution No. 203-2013-MEM/DM, Law No. 29852 that created the Energy Security System in Hydrocarbons and the Energy Social Inclusion Fund and its Regulations, among others.

The General Directorate of Energy Efficiency, with the technical assistance of the EnDev Peru Project, has been developing different studies for the NAMA, among them, the diagnoses of the current situation on rural electrification and clean cookstoves, which have ended, and the scenarios of greenhouse gas emissions (2010 – 2030), which will end in December 2017. However, in parallel and as a complement to the NAMA, the following are being developed: the technological validation in the laboratory and field tests of different types of clean cookstoves; the design of a Technical Institute of Sustainable Solutions for Electrification, Cooking and Heating for Women in Rural Areas in Peru; a proposal to amend the Regulations of the FISE Law to include clean cooking technologies and off-grid electrification; revision and proposal of changes in the tariff system for rural electrification; and first steps to develop the Map of renewable resources to help close the Universal Access gap.

I should mention that, in the process of designing the NAMA and its components, the General Directorate of Energy Efficiency coordinates in an

articulated way with different actors, for example with the General Directorate of Rural Electrification (DGER) of the Ministry of Energy and Mines, which is responsible for planning and implementing initiatives on rural electrification; as well as with the Ministry of Social Inclusion and Development (MIDIS), as entity responsible for installing improved cookstoves. It is worth mentioning that the EnDev Peru Project is providing technical assistance to the DGER and MIDIS, within the framework of agreements signed between them, thus its support is key to said articulation.

Finally, I would like to comment that the EnDev Peru Project, due to its experience in rural electrification and clean cookstoves, and now in the climate change approach, has been providing the General Directorates of Energy Efficiency and Rural Electrification its support to provide necessary information to fulfill with the update of the mitigation options of NDCs.

The objective of this NAMA is to reduce the rural electrification gap and large-scale adoption of improved cookstoves.

Next steps

“In 2018, we are going to finish with the design of the NAMA on “Universal Access to Sustainable Energy” and its Monitoring, Reporting and Verification System. The idea is that we can present it to the National Registry of Mitigation Actions of the Ministry of the Environment and in the United Nations Framework Convention on Climate Change Registry”.

Javier Campos, Director General de la DGEE-MEM

DGEE-MEM

The Ministry of Energy and Mines (MEM) is a public body, with the objective to promote the integral and sustainable development of mining-energy activities, regulate and supervise the compliance of national policies. The General Directorate of Energy Efficiency (DGEE) is the technical regulatory body in charge of proposing and evaluating the energy efficiency policy and non-conventional renewable energies, as well as conducting the energy planning.

www.minem.gob.pe



Improved cookstoves for the Qali Warma Programme

Due to the cooperation between the Ministry of Social Inclusion and Development and the United Nations Development Programme, public schools located in rural areas of Peru will have portable improved cookstoves through Qali Warma, the national school feeding programme. It is expected that more than 200,000 children at nursery and primary school from the poorest areas of the country be benefited.

By Rolando Wilson Arancibia, Specialist for the Programme of the Office of Prosperity and Poverty Reduction of the UNDP

The President of the Council of Ministers, Mercedes Aráoz, together with the Minister of Social Inclusion and Development, Fiorella Molinelli, supervise the delivery of 11,000 portable improved cookstoves.

Faced with the constant challenges of rural areas of Peru to provide food in adequate conditions, the United Nations Development Programme (UNDP) has been contributing to Qali Warma National School Feeding Programme of the Ministry of Social Inclusion and Development, through an agreement that wants to strengthen the policy of social protection through the effective and sustainable execution of portable improved cookstoves in rural schools at national level.

The agreement has had two phases. The first began in November 2013 and ended in December 2016, and then evolved into a second phase that started in June 2017. Thus, this new phase seeks two major results: the first wants to contribute with the equipment of School Feeding Committees (CAE, for its acronym in Spanish) in prioritized schools in Andean and Amazonian rural areas of poverty quintiles I and II. Meanwhile, the second objective is aimed at generating evidences that allow to improve the design and implementation of the Qali Warma Programme, making it more effective in the national context as a tool for social protection, food security and rural development, and consolidating it as public school feeding policy.

In this context, the first objective seeks to provide technical assistance in the acquisition, installation, distribution and training at the CAE level for the good use of portable improved cookstoves in rural schools of 15 regions of the country. It is worth pointing that since the beginning we have been working together with the EnDev Peru Project, with whom the UNDP has executed an interinstitutional cooperation agreement, receiving assistance on technological specifications of improved cookstoves and accompaniment during the implementation.

EVOLUTION OF MODELS

From the analysis of the difficulties presented during a tender for the implementation of fixed improved cookstoves at national level, a joint evaluation process was initiated to decide what type of technologies would be viable to install considering the long distances and little accessibility to education institutions of poverty quintiles I and II served by the Qali Warma Programme. In response, EnDev Peru presented different models of portable improved cookstoves for institutions, from its experience in countries of Asia and Africa, element that was taken as reference to design a prototype of an institutional cookstove, according to the local cooking habits and the type of fuel available, both in the Amazon and the Highlands, being basically firewood.

It is worth mentioning that the alternative of using gas is only considered for schools with access to

Improved cookstoves contribute to improving the conditions in which mothers cook food in schools.

authorized distributors, since a great number of localities lack access or maybe School Feeding Committees and/or parents do not even have the resources to buy gas as much as required. Given this situation, improved cookstoves represent a good alternative in contrast to the current means of cooking used in many schools; that is, by using open fire. In this sense, improved cookstoves contribute to improving the conditions in which mothers cook food at schools, also providing benefits for their health and improving the general conditions of the facility, as the walls and ceiling are no longer soot-stained.

In this line, the EnDev Peru Project accompanied the design of the prototypes, which then were tested by the National Training Service for the Construction Industry (SENCICO) that provided safety recommendations for the use of cookstoves. Finally, in July 2017, this process allowed to set the basis for a new tender, which was awarded to two business consortia to serve four lots, which together cover 15 regions of the country. It is important to mention that these consortia are made up of companies with experience in the distribution service for remote areas in the country, together with other companies that manufacture

this type of technologies, whose staff participated in a program of capacity building in installation, use and maintenance of improved cookstoves.

PROGRESS AND PERSPECTIVE

As of November 2017, portable improved cookstoves have been installed in 500 schools in the country, and the process is expected to be completed by the end of the year, reaching a total of 11448 cookstoves in 5724 schools, benefiting 204,000 children currently attending nursery and the primary level. Thus, while this represents an important step to reduce the gap in adequate access to energy for cooking in rural schools in the country, it still does not cover the entire demand nationwide.

The Qali Warma Programme serves 62 thousand schools nationwide with three objectives: a) provide a food ration to ensure school permanence during the school period; b) improve their leaning in the short term; c) contribute to improving feeding practices.

Regarding the on-going process of installation of portable improved cookstoves, EnDev Peru provided technical assistance during the training workshops aimed at installers from both consortia,

Portable improved cookstoves are easy to transport and represent an alternative to the means in which it is being cooked in rural schools.

who have received the necessary instruction in the guidelines of installation, good use and maintenance of cookstoves. Moreover, many education tools were developed: a booklet, computer graphics and posters comparing cookstoves and open fire.

On their behalf, both consortia have received the task to hold workshops for Qali Warma operators in each region involved, as well as for specialists from sectors related to the Social Development Management of regional governments. In this sense, UNDP, together with EnDev Peru have carried out complementary advocacy and raising awareness actions towards the process of adoption and sustainability. Thus, part of the strategy seeks that regional governments' actors get involved, so that when they go to schools to perform their tasks, they can supervise the good use and maintenance of cookstoves.

In addition, it seeks to evaluate, after a prudential operation time, a representative group of education institutions to demonstrate the status of installed cookstoves, with the premise that the adoption of a technology is not an automatic process. Therefore, the Qali Warma Programme operators shall have their technical and evaluation criteria very clear, so that they are reinforced during their technical assistance visits at the level of School Feeding Committees.

Finally, regarding the financing, this is a project entirely developed with State resources and administered by UNDP, with eleven million dollars for the second phase, of which six million are assigned to the improved cookstoves programme. Moreover, in case the installation process is not finished by the end of this year as agreed, it is expected, with the power of law, to reach to an extension of the agreement until the end of 2018.

We have been working together with the EnDev Peru Project, with whom the UNDP has executed a cooperation agreement.

MIDIS

The Ministry of Social Inclusion and Development (MIDIS) is a body of the Executive Power whose main objective is to improve the quality of life of population in situations of vulnerability and poverty, promote the exercise of their rights, access to opportunities and the development of their own abilities.

Qali Warma is a programme of the MIDIS that provides food service with educational complement to children enrolled in public schools of nursery, primary and high school levels of the indigenous populations of the Peruvian Amazon, in order to help improve attention in classes, school attendance and feeding habits, promoting participation and co-responsibility of the local community.

www.midis.gob.pe

www.qaliwarma.gob.pe

PNUD

Since its creation in 1965, the United Nations Development Programme (UNDP) has focused on supporting the strengthening of national capacities around the world. With a global network that promotes the Sustainable Development Goals (SDGs), human rights and gender equity, the UNDP provides technical assistance to achieve sustainable human development, taking into account each country priorities.

In Peru, since 2001, the UNDP has collaborated with the process of democratic consolidation, economic recovery and improvement of the quality of life of the poorest, through specialized assessment and participation in the implementation of different programmes and projects.

www.pe.undp.org



PCM Perú

“We want to understand the lessons learned”

Hugo Sulca, General Director of the General Directorate of Rural Electrification (DGER) of the Ministry of Energy and Mines, comments on how the government seeks to close the gap of energy access in rural areas, a process where the efficient use of energy and its productive uses are applied. Furthermore, it highlights the experience shared by the EnDev Peru Project.

By Carlos Bertello, editor of Amaray

Hugo Sulca, General Director of the DGER-MEM states as main objective to expand the electric border.



Archive EnDev-GIZ

HOW DID THE DGER START ITS RELATIONSHIP WITH THE ENDEV PERU PROJECT?

At the beginning of 2015, the General Directorate of Rural Electrification (DGER) of the Ministry of Energy and Mines (MEM) and EnDev Peru started having meetings to carry out a cooperation programme to promote social inclusion through access to electricity services.

The DGER have been implementing the Budgetary Program PP0046 Access and Use of Rural Electrification, so the cooperation arrived at the right time. Thus, cooperation and technical assistance mechanisms are established in order to implement strategies for the Efficient and Productive Use of Electric Power.

REGARDING THE PP0046: WHAT IS IT ABOUT AND HOW DID IT ORIGINATE?

The Ministry of Economy and Finance (MEF) has established the Budget for Results (BfR) as a public management strategy that links the allocation of resources to products and measurable results in favour of the population. In this sense, Budgetary Programmes (PP) are an instrument of the BfR and are oriented towards providing products to achieve a specific result in the population.

In the case of the DGER, the aforementioned PP0046 was assigned to this Directorate in 2012, oriented towards guaranteeing that the rural settler has access to electricity and therefore a better quality of life. To this effect, access to electricity is complemented by training programmes, both in the safe and efficient use of electric power, and in opportunities for productive use. Furthermore, the DGER provides technical assistance to regional and local government officials in charge of the corresponding rural electrification programmes.

WHAT ARE TRAININGS IN THE EFFICIENT USE OF ENERGY?

These trainings are aimed to achieve that users of the service receive education in the effective, safe and efficient use of electric power. EnDev Peru supported the DGER in the design, implementation and monitoring of training programmes to rural settlers, contributing to the proper handling of electrical installations.

AND AS FOR THE PRODUCTIVE USE?

These trainings, aimed at rural households, have the objective to identify business opportunities derived from the productive use of electric power. EnDev Peru supported the DGER with the design and execution of these trainings, thus promoting business opportunities and development initiatives in the rural sector, mainly with organizations of agricultural producers.

WE UNDERSTAND THAT BY 2018, JOINT ACTIVITIES WITH ENDEV PERU WILL BE EXPANDED.

We are requesting the support of EnDev Peru for monitoring rural electrification experiences with solar home systems (SHS). In addition, we want to understand the lessons learned, as well as receive assistance on the analysis of the contribution that represents the use of renewable energy, for example, in the topic of climate goals to reduce emissions of polluting gases.

WHAT RESULTS CAN YOU HIGHLIGHT FROM THE COOPERATION WITH ENDEV PERU?

In general, we have a very positive opinion. They have transferred much of their knowledge in how to develop training programmes on the efficient, safe and productive use of electricity. Therefore, they have trained young leaders of newly electrified towns, so young leaders can identify electrical materials that guarantee a proper operation, and have taught them to carry out indoors electrical installations complying with specific safety requirements. Even in some cases, these young people have implemented their own businesses selling materials or electrical installations.

WHAT ARE THE MAIN CHALLENGES TO CLOSE THE GAP IN RURAL ELECTRIFICATION?

Our main objective is to expand the electric border through the execution of rural electrification works. In this sense, according to the National Plan for Rural Electrification, the goal is to achieve rural electricity coverage of 99% by 2012. Although we are going to end 2017 with 81.5 per cent of rural electricity coverage at national level, the remaining stretch is the most complicated area because it represents the most remote populations. Therefore, we are interested in the experience that EnDev Peru has accumulated over time, so that the design of these projects is effective and sustainable over time.

“EnDev Peru supported the design of training programmes aimed at rural settlers”.

DGER-MEM

The Ministry of Energy and Mines (MEM), through the General Directorate of Rural Electrification (DGER), has competence on rural electrification matters pursuant to the General Law of Rural Electrification; on the expansion of the electric border in the national level; on coordination with regional and local governments, and public and private entities dedicated to these purposes, allowing access to the supply of electricity to peoples of the interior of the country, as a means to contribute to their economic and social development, mitigate poverty and improve their quality of life.

www.dger.minem.gob.pe

Promoting rural energization

From a holistic and integrating view, based on the concept of energization, the Collective of Basic Access to Energy (ABE) wants to contribute and make visible proposals aimed at reducing the gap in access to energy for rural areas, promoting mainly the use of renewable energies.

By Alicia Castro, Senior Advisor for the EnDev Peru Project



Members of the ABE Collective reunited for the official presentation of one of its most recent publications.

ABE COLLECTIVE

The Collective of Basic Access to Energy is formed by: the Latin American Platform for Sustainable Energy and Equity (PLESE), the Institute for the Sciences of Nature, Territory and Renewable Energies (INTE) of Pontifical Catholic University of Peru (PUCP), Practical Action, the Fund for Sustainable Access to Thermal Renewable Energies (FASERT), implemented by the Inter-American Institute for Cooperation on Agriculture (IICA) and the Energising Development Project (EnDev) in Peru, executed by the German cooperation for development, implemented by GIZ.

The Collective of Basic Access to Energy (ABE), oriented to favour the visibility of the topic, is promoting spaces of technical debate to increase the critical mass around access to energy. Besides, the collective has developed and published documents and articles with recommendations for public policies to promote rural energization with renewable energies in Peru.

In this sense, “the importance to generate and spread knowledge about renewable energies focuses on the construction of scientific and technical evidence, seeking to influence favourably on public policies on energy security topics. This, from an integral approach and for the diversification of the energy matrix. The appropriation of knowledge in these topics is key for the different actors of the system (academia, government, companies, technical cooperation and civil society) to raise awareness and carry out actions that contribute to the energy transition, to universal access to energy and climate resilience”, states Urphy Vásquez, member of INTE-PUCP.

SPREADING THE KNOWLEDGE

The first publication of the Collective focused on rural energization for basic access to energy, presenting the analysis of the problem and the status of the situation with regards to universal access to energy, exposing the alternative of renewable energies in Peru. Along with this analysis, a group of initiatives was described, which illustrated how to generate energy from natural resources that exist in the country and that managed to transform the living conditions in households, schools and rural communities. Said document provided short, medium and long-term proposals.

In order to continue contributing to the technical discussion, the Collective recently presented a second publication referred to the regulation and access to energy through renewable energies. This document contains an analysis of the most important laws and regulations that have allowed access to energy in rural areas of Peru, thus allowing a balance of the situation. It is worth saying then, that this work contributes to the understanding of the Peruvian regulatory framework, thus guiding the design of proposals for the sustainable development of energy in the regions of Peru.

Within this line, “regulation is essential to ensure compliance of public policies, which is why I highlight the effort to analyse the Peruvian regulations on access to energy. How different it is to face the lack of food, the pollution of air when

cooking, cold or heat, with bioclimatic households. In this sense, through sustainable access to energy it is possible to obtain opportunities that were not available before and a gradual process of capacity building and knowledge that allows citizens to grow, develop and gain quality of life, dignity and freedom. Regulation means having a clear road map to resolve these barriers to human development”, says Pedro Gamio, member of PLESE.

ADVOCACY ACTIONS

In order to achieve greater scope and better results of change, the Collective seeks to contribute efforts, participating in spaces of public impact and deploying advocacy, information and awareness actions at different levels. Therefore, the most recent activities in which the group has had an active participation are shown below:

- **Expo Amazonica in Moyobamba**, organized by the Regional Government of San Martin.
- **International Forum on Climate Security**, organized by the Energy Commission of the Congress of the Republic.
- **Exhibition Energy transition in Germany**, organized by the German Embassy, in coordination with AHK, KAS and GIZ, sponsored by the UTEC.
- **Congress on Renewable Energies and Bioclimatic Architecture**, organized by the PUCP.

As renewable energy technologies are a viable alternative to boost sustainable livelihoods, the Fund for Sustainable Access to Thermal Renewable Energies (FASERT) has joined the Collective, seeking to increase the use of renewable energy in Peru. “The proposals of the Collective need to reach the decision-makers and population in general, hence it is very important that members act together and participate in public impact events”, highlights Angélica Fort, member for FASERT-IICA.

It is also worth mentioning that the Collective joins efforts to accelerate the process of diversification of the energy matrix. In that sense, it is part of our contribution to develop greater awareness and education in citizenship in environmental matters, as well as to highlight the promotion of successful experiences in renewable technologies and energy efficiency, seeking to be a support for public policies. In conclusion, contributing to achieve the energization goals and support the transition to renewable energies represents the axis of interest on which the actions of the collective will continue to be deployed to ensure future generations to enjoy sustainable human development.

The collective has developed and published documents and articles with recommendations for public policies.

EnDev Peru, 10 years facilitating access to energy

EnDev Peru has facilitated the arrival of basic access to lighting technologies to rural towns. Here, in a province of the region of Cajamarca.

The EnDev Project is celebrating its 10th anniversary in Peru and with that it leaves us with great experiences in the search to offer better access to energy for rural populations. Thus, we present three aspects of this process: support to public policies, work with entrepreneurs and projects financing.

By members of the EnDev Peru team

Strengthening public policies

Based on a technical assistance and cooperation role, the EnDev Peru Project has promoted alliances and platforms oriented to achieve a real commitment for the design of efficient public policies, factor that will finally close the gap in basic access to energy in rural areas of the country. This very dynamic process has required a joint work with different national actors and ministries.

By Ana Moreno Morales, Director for the EnDev Peru Project

Promoting alternative energy sources has been one of EnDev Peru tasks. Here, in a pilot project with a river turbine in the locality of Marisol, in San Martín.

Archive EnDev-GIZ



EnDev Peru is a project that provides technical assistance and carries out actions that seek to consolidate a sustainable market of technologies for access to energy in vulnerable populations. At the beginning of its activities in 2009, according to official statistics, 13.5 million Peruvian people in Peru cooked with inefficient and polluting cookstoves (three-stone open fire or traditional cookstoves) and five million people lack access to electricity, using candles or burners for lighting.

This reality is reflected in the experience of Doña María and her young children, in the community of Haparquilla, in the province of Anta, in the department of Cusco. She suffered lower back problems due to being crouched every time she cooked. Besides, the whole family felt the burning in their eyes due to smoke of stoves and burners used due to the lack of electricity at night.

To face this reality, EnDev Peru has promoted alliances and facilitated concertation platforms oriented to achieve political decisions and promote knowledge exchange. In other words, a real commitment is sought on the part of authorities for the design of effective public policies, as well as to give support to social investments in the issue of universal access to energy.

Like this, EnDev Peru has developed advocacy actions, aligning with public policies related to access to energy for cooking, electrification, especially in rural areas, as well as access to energy for productive uses. However, making the needs of settlers visible is not enough for decision-makers to invest in massive solutions for the population. Therefore, it is necessary to generate evidence on the social, economic and environmental impacts that may be achieved through the implementation of these processes, thus ensuring that programmes of this type are financed.

It is worth highlighting that the proper development and sustainability of these processes requires the State to offer enabling and regulatory conditions (such as financing and technical standards) that promote the market of access to energy. Moreover, it is important to ensure that public policies evolve systematically over time, independently of the government in power.

ENERGY FOR COOKING

In order to boost the “Half Million Improved Cookstoves for a Smokeless Peru” Campaign, EnDev Peru served as technical secretariat, allowing the construction of public-private alliances that helped to become visible, acting through high-

impact events that mobilized the public opinion and the media. This favoured decision making at the highest level of the government, expressed in the publication of Supreme Decree No 015-2009, where the Technical Standard was approved to ensure quality and certify improved cookstoves. Also public financing mechanisms were activated, as for example the approval of the Emergency Decree N° 069-2009 that allowed regional governments to have at their direct disposal State resources to finance improved cookstoves projects.

In this context, the actions of EnDev Peru have not been static, because with each new government, the Project has had to innovate to put new technologies and implementation strategies at the disposal of the authorities in office. In this sense, EnDev Peru has kept alive its creativity to introduce new technologies, for example, taking them to the 20th Conference of the Parties (COP20) of the United Nations Framework Convention on Climate Change, held in Lima in 2014. There, former UN Secretary-General, Ban Ki Moon and well-known Peruvian chefs, Gaston Acurio and Virgilio Martínez, helped to promote innovative portable improved cookstoves. It is important to mention that for 2017, the Qali Warma Programme of the Peruvian State has tendered 11000 of these technologies.

Additionally, EnDev Peru is supporting the process of updating the Technical Standard for improved cookstoves with the Ministry of Housing, which includes the certification of portable cookstoves without chimney, institutional cookstoves and those using other types of biomass different from firewood. We also provided advice on the development of voluntary technical standards, such as safety standards, energy performance, adoption, pollution and construction aspects in conjunction with the National Quality Institute in the framework of international standards of the International Workshop Agreement (IWA).

RURAL ELECTRIFICATION

In the case of electrification, Peru had already a National Plan for Rural Electrification, which in addition to financing the expansion of grids, included the connections, leaving as well installed the meter of the household. However, the situation inside the house is also from very dangerous to chaotic, which is why the Global Tracking Framework of the World Bank considers that insecure access reaches maximum a level 3 of electrification. Safety is a necessary attribute to achieve a level 4 and 5 of electrification.

The EnDev Peru Project has promoted alliances and platforms oriented to achieve political decisions.



Archive EnDev-GIZ

The initiative Safe Rural Home developed by EnDev Peru, promotes a local market for safe indoor electrical connections, training on the one hand the supply through local electricians that we connect in addition to manufacturers of quality electrical equipment and, at the same time, informing the demand about the problems and benefits of the use of qualified workforce and appropriate electrical equipment.

After six long years of working locally with distribution companies, local governments and the private sector, in addition to multiple visits, workshops and advocacy actions; the Ministry of Energy and Mines (MEM) has requested the transfer of the initiative and is actively implementing it since 2015 with its own resources. Thus, the training of local electricians and the promotion of adequate electrical equipment have been added to develop the necessary local market of safe indoor installations achieving the maximum level of access to electricity.

In the framework of electrification with Solar Home Systems (SHS) that MEM has been promoting since 2010, EnDev has complemented the implementation processes with training activities for local users and technicians, reducing the incidence of simple faults and thus maintaining the willingness to pay of users. In addition, EnDev Peru facilitated the dialogue between the distribution companies that manage the SHS, seeking to optimize the management models through the exchange of experiences. For the massive public-private partnership of around 200,000 SHS that will be installed by 2019, the MEM has requested the transfer of methodological tools for training users and technicians and likewise with EnDev Peru to collect all lessons learned from the management to date, resuming and leading the dialogue that we started with distribution companies, even thinking about a tariff revision.

Regarding photovoltaic technology, EnDev Peru developed for the MEM the technical standard for pico PV systems based on the IEC Global Lighting

A woman from the province of Cajabamba, in Cajamarca, in front of an electricity bill, where EnDev Peru encouraged the use of safe indoor connections.

Standard, since in Peru there were only standards for systems greater than 50 Wp, ignoring lithium batteries or plug & play systems with high efficiencies of 1m/W and complementary uses.

PRODUCTIVE USES AND COMPLEMENTARY ACTIONS

Likewise, the Ministry is integrating the approach of productive uses promoted by EnDev, which focuses on agricultural cooperatives, as its own strategy to achieve greater impact. This approach was developed through the alliance between EnDev Peru and the Ministry of Agriculture, evidencing and training in the role of energy in the promotion and financing of productive technologies for agricultural cooperatives. The Ministry of Energy is focusing to date its action on overcoming technical business barriers that prevent agricultural cooperatives from using electricity and intercede in the dialogue with distributors, thus complementing the efforts of the agriculture sector that finances productive technologies, but cannot intercede for the access and appropriate use of grids.

In this line, we developed with the SENCICO the curriculum of two courses for the qualification of technicians in the installation of photovoltaic systems and for technicians that installed improved kitchens. On the other hand, in the perspective of creating sustainable change in the care of energy, and considering that children are agents of change today in their families and future adults, we develop education material for teacher work in rural schools, which were validated in 6 regions of the country, obtaining the necessary support for the Ministry of Education to approve it. Since January 2018, it will be disseminated in Peru Educa, a website of the Ministry that is used in schools of the country.

Beyond the MEM's own energy access actions, EnDev Peru is also cooperating with the MEM regarding global agendas such as the 2030 agenda and the NDC, the latter in a tripartite alliance with MINAM. The energy sector has 20 mitigation measures of 70 that the country has and is designing (supported by the UNDP) 4 NAMAs to boost some of them. The NAMA of universal access to sustainable energy includes 4 mitigation options for cooking and rural electrification and for its design EnDev is transferring all the know-how accumulated in 10 years of experience in technologies, methodologies, business models and management among others. It also supports and learns in the processes of quantification of GHGs, co-benefits, financing and the MRV system.

THE SUM OF EFFORTS

If we had to summarize our actions with public institutions according to the actors and the type of action, we could say that we have had influence in the level where sectorial policies and regulations are formulated, such as the Council of Ministers and the Congress of the Republic. In a sustained way, we have provided advice at the level where public policies are implemented, we have cooperated with 4 ministries, 4 regional governments and 30 local governments, which has allowed us to promote and advise on the development of 50 projects. We have worked at the level of regional and local governments generating policies that promote and finance energy access initiatives such as San Martin's regional energy policy or using the national public investment system to implement solar water heaters in schools in Tacna and Arequipa.

We corroborate that access to energy today is a topic of interest for many sectors. Thus, at the national level we have established cooperation agreements with the energy sector (MEM, Energy Utilities), with the construction and housing sector (Ministry of Housing-SENCICO), in the social sector (MIDIS-FONCODES, MIDIS-Qali Warma), in the environmental sector (with MINAM to ensure that NDCs related to basic access to energy have a timely schedule for GHG mitigation), and with the education sector (MINEDU).

AN AIR OF CONTINUITY

After almost 10 years of uninterrupted work, EnDev Peru is preparing to leave the country. In this sense, with a view to guarantee the continuity of implemented actions, a process has been initiated to make available to the counterparts of the project all the knowledge acquired, which is aligned with the national development policies and agendas.

Finally, we would like to highlight that energy access actions, which were developed together with public actors and materialized in large-scale technology donation projects for the poorest populations of the country, set the bases to present technologies or services that were previously unknown to rural population. This therefore allowed the birth of technology providers, who after attending state tenders, accumulated a capital that allowed them to create new businesses. In this sense, it is essential to point that they are the ones who currently serve the retail demand and offer after-sales services for beneficiaries of social programmes. Thus, it is important to recognize that social donation programmes do manage to coexist with the development of the market, complementing each other.

After almost 10 years of uninterrupted work, EnDev Peru is preparing to leave the country.

From the square of Andahuaylas to the Expo Amazonica

Entrepreneur Fritz Buleje has managed to establish business alliances with wholesalers and retailers for selling improved cookstoves.

In February 2009, in the city of Andahuaylas, region of Apurimac, Fritz Buleje hurried to collect a stamp that he had order to print his name and telephone number on some pieces of paper, along with the slogan of his product “Certified firewood cookstoves”. Meanwhile, in the main square of the city, the mud of a cookstove was drying, built during the night to be exhibited and promoted the next morning.

EnDev Peru has supported Fritz and other entrepreneurs through commercial promotion actions.

Previously, a donation of 400 improved cookstoves from the National Programme of Direct Support to Poorest JUNTOS had an impact on him. Fritz had notice that the demand of these technologies was quite higher than the donation made, therefore, he decided to take advantage of this potential. He had understood that a public action had been an excellent advertisement for spreading and promoting the use of these cookstoves to those people who had not been benefited by the programme. With this opportunity, the EnDev Peru Project did not hesitate to provide the training Fritz requested.

Eight years later, Fritz has managed to execute alliances with wholesalers and retailers of other regions and has sold more than 4000 improved cookstoves. Moreover, he commercializes other basic energy access technologies (BEAT) such as solar home systems and improved ovens.

In this context, EnDev Peru has supported Fritz and allies through commercial promotion actions and by disseminating videos developed especially for their businesses and the positioning of BEATs. It is worth noting that these videos have been broadcasted in countries from three continents.

Many lessons have been capitalized since then, when Fritz presented his products in the square of Andahuaylas for the first time. The greatest lesson was noticing that Fritz without commercial articulation would not be able to reach all the regions of Peru that he today does. Therefore, we promoted the commercial articulation with other companies at local and regional level to multiply the sales channels, and that they do not depend solely on the fairs that Fritz can attend.

For that, the empowerment of local settlers, members of the communities, people interested in the sale of these technologies helped, especially those natural entrepreneurs who were already owners of a local business. We refer to those rural stores that sell everyday products at double the price in the city, but that have remained during time in the community and are the commercial

We offer two stories of local entrepreneurs, people who managed to change the future of their families when faced with the challenge of commercializing basic energy access technologies. They recognized the opportunity and thanks to the support of EnDev Peru, now they live the dream of working for a better quality of life for themselves and their towns.

By Angel Verástegui, Principal Advisor for the EnDev Peru Project and Alicia Castro, Senior Advisor for the same project

agent, which is closest to the last mile that BEATs want to reach.

Analysing this situation, these rural stores represent the last link of the different commercial distribution chains, which are the result of an informal economy that responds to the local demand, assuming all transaction costs to finally transfer them to the final customer of the last mile, offering therefore a high price, but keeping the business successful and stable. Hence, it is worth arguing that if the store was there for five years, maybe it will continue there for another five and therefore, we will reach sustainability of BEATs supply.

GROWING STEP BY STEP

In contrast to the “top-down” story of Fritz, the “bottom-up” story in the commercialization of the BEATs is that of Tito Cerna, an electrician trained by EnDev Peru in the region of Cajamarca. Tito started this process with the purchase of only three solar lamps and to date has managed to implement in his house (which is at the same time a rural store) a showcase full of them, in alliance with an importer of portable solar systems, based in Lima.

However, in this business relationship a critical element was the absence of a regional wholesaler. It would have been ideal if Tito could acquire his three first lamps directly in Cajamarca and not from an importer in Lima. Import into containers and sell 3 units each month, doubtfully is the greatest efficiency in a business. On the other hand the picking of the product, the payment and even manage guarantees, is much more comfortable in person and is cheaper. Articulate a retailer like Tito directly with the importer could not be a sustainable commercial chain. Therefore, the next step was finding a regional wholesaler, with which the outlook of Tito’s business took an important boost. Moreover, the importer followed this model, achieving greater efficiency at their distribution chains.

In this respect, the wholesaler is key in the development of local retail markets because it represents the bridge between an importer (or also a national manufacturer as Fritz) and the local store (or retailer as Tito), i.e. between the “executive and formal” supply and the demand on “informal” retailers. Seen from another point of view, this is how the market of products works, from mobile phones to beers, which indicates that it is also the most efficient way to commercialise BEATs technologies from a pure market approach.

It is worth noting that the wholesaler is a large customer for importers, because, although it does not buy large amounts in a tender, it does constantly make large purchases. In addition, the wholesaler knows its area of intervention and probably has retail distribution channels.

GENERATING ALLIANCES

A year ago, the EnDev Peru Project carried out a survey to 15 entrepreneurs involved in the commercialization of BEATs, finding out that 14 of them had established some kind of business alliance among them during the last year, as result of the different encounters promoted by EnDev Peru. Therefore, it was possible to observe how a sense of trust was established. Then, as the advantages were evident, the project encouraged them to form a network of entrepreneurs of BEATs.

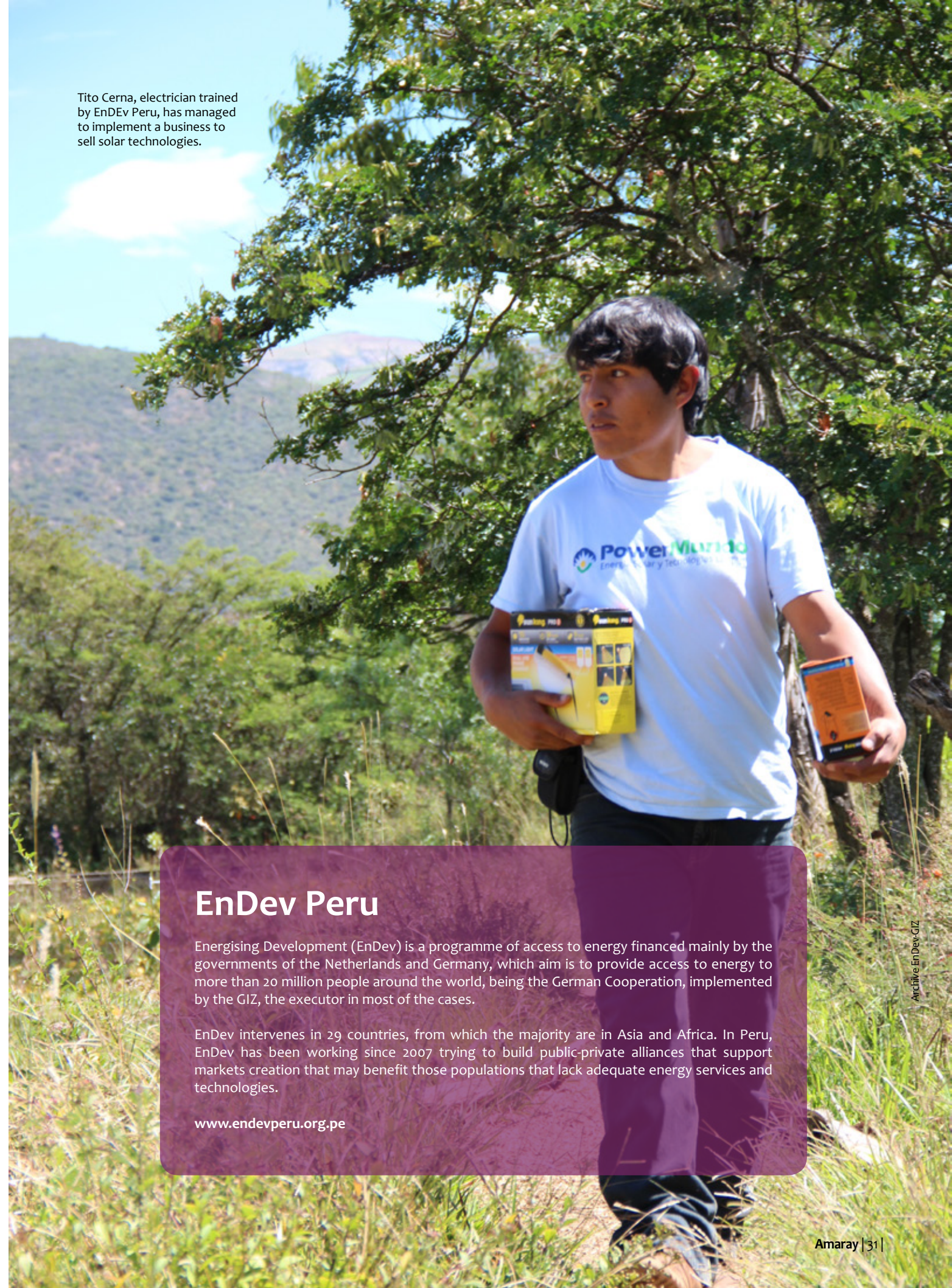
In this sense, joint actions started, such as the participation in regional fairs and events of greater impact as Expo Amazonica 2017, carried out in the region of San Martin, one of the most important in the country, since it connects the supply of producers and importers with the potential demand of wholesalers, retailers, final customers apart from national and international investors. Like that, members of the network of entrepreneurs of BEATs share their stands, exhibiting technologies as solar water heaters, solar home systems, improved cookstoves and firewood portable ovens.

We can see the path from the square of Andahuaylas to Expo Amazonica, from papers cut out to videos with global production, or from the support to Fritz and Tito to the network of entrepreneurs of BEATs. Thus, we see a path that is marked by the continuous evolution of the role that EnDev undertook in the development of markets at the base of the pyramid. From locally promoting installers-sellers of fixed improved cookstoves, to encouraging business alliances between entrepreneurs from different regions to achieve the highest possible coverage of BEATs offer in the country

It is worth noting that in this process, no type of subsidy has been delivered by EnDev Peru, nor technology, or logistics costs, or seed money. From the perspective of the project, the response was focused on the strengthening of capacities for actors of the supply of technologies and services, the articulation of different actors in distribution chains and the promotion of joint work.

Joint actions began, such as participation in regional fairs.

Tito Cerna, electrician trained by EnDev Peru, has managed to implement a business to sell solar technologies.



EnDev Peru

Energising Development (EnDev) is a programme of access to energy financed mainly by the governments of the Netherlands and Germany, which aim is to provide access to energy to more than 20 million people around the world, being the German Cooperation, implemented by the GIZ, the executor in most of the cases.

EnDev intervenes in 29 countries, from which the majority are in Asia and Africa. In Peru, EnDev has been working since 2007 trying to build public-private alliances that support markets creation that may benefit those populations that lack adequate energy services and technologies.

www.endevperu.org.pe

Different regions of Peru are benefited from the use of solar technologies. Here, a settler with a solar water heater in the locality of Chivay, Arequipa.

Archive EnDev-GIZ

Developing financing mechanisms

In an initiative to provide greater offer of basic energy access technologies in rural areas, EnDev Peru is working on solutions that may link microfinance institutions with the other actors of the market for these technologies. The participation of the FASERT fund has been decisive in this process.

By Juan Carlos Quiroz, Senior Technical Advisor for the EnDev Peru Project

When I travel to different places in Peru, I can see that people in rural areas live better somehow, but I also notice that it is still difficult for them to acquire technologies such as improved cookstoves, solar energy for lighting or hot water from solar heaters by their own means. Unfortunately, the money that remains is not enough after taking on expenses in other areas such as agriculture, education or food.

Given this reality, as EnDev Peru made progress in the development of the market for basic energy access technologies (BEAT), we realized the need to create financing mechanisms that support the market development in a sustainable way. In this sense, it was clear that the situation might get better if population could get a credit. However, this is not always easy, since rural families normally do not dare to ask for it or have no place to manage it.

Now, while it is true that Peru is a leading country in the topic of microfinance, microfinance institutions (MFI) do not often have a portfolio of green credits due to their limited knowledge on technologies or the energy needs of the population. There is also very small local presence of businesses that offer certified technologies.

Similarly, there is marked mistrust from MFIs regarding the quality of the supply and the after-sales service provided by manufacturers and traders of these technologies, so that the return of the investment made can be guaranteed. As an example, I remember that once, a MFI told me that they ventured into granting credits for motorcycle for rural areas, having a very promising start. However, the product failed due to a poor after-sales service.

ADVOCATES FOR CHANGE

Taking into account all the inconveniences of the sector, in EnDev Peru we think it is necessary to explore and find solutions that may link MFIs with other actors in the BEAT market. Thus, our first action in the development of financing mechanisms dates back to 2011, when the alliance with Appui au Développement Autonome NGO (ADA), based in Luxembourg and MicroEnergy International, German consulting company, implemented the initiative of Energy Inclusion, an experience that was developed as a pilot with two MFIs from Arequipa and Junin. In this line, developed mechanisms consisted in fostering the direct relationship between the suppliers of solar dryers, improved ovens and solar water heaters, with the commercial platform of MFIs.

For that, EnDev Peru had to design the strategy at the institutional level. Alliances were mainly fostered among market developing entities,

technology suppliers and MFIs. Therefore, support functions were aimed at developing the credit product, selecting technologies, developing business capacities of the advisor, the articulation of MFIs - technology supply, strategies of promotion and the development of the supply chain.

However, an element to generate more confidence in MFIs was missing, since they were facing an unknown terrain. Thus, the quality of technologies was certified through validation processes, and the suppliers were strengthened to improve the articulation of the commercial chain and encourage the creation of points of sale for serving the so-called "last mile". It is worth mentioning that suppliers had to develop technical and logistical capacities to be able to attend areas located up to 25 hours from their operations centre.

This was how in this first attempt to generate financing mechanisms for BEAT, where the participation of MFI is considered as an intervention axis of the intervention, important lessons were generated. For example: having a permanent technical advisor from cooperating organizations; the difficulty of assimilating for MFI to administer the supply chain; or the lack of commitment of credit analysts due to the low incentive received by a credit of this type.

WIDENING THE EXPERIENCE

Given the difficulties of the model that was proposed, the Project decided to explore an alternative model, sharing the lessons learned with colleagues from the Fund for Sustainable Access to Thermal Renewable Energies (FASERT). Thus, through access to this fund, new experiences were generated, which include new actors, such as the community banking, associations of producers, as well as municipal savings and credit funds organizations.

Within this line, benefiting associations of producers with financing mechanisms has allowed the acquisition of improved cookstoves and solar coffee dryers from their partners, thereby promoting their living conditions, as well as strengthening the market for this type of technologies. Moreover, the idea is that the organization commits itself to economic recovery, so that the acquisition of more TABE continues to be financed.

Likewise, the EnDev Peru Project saw the opportunity to expand this experience through Credit and Savings Unions (UNICA), which are small associations of families that lack access to credit, therefore entering in the concept of community banking, i.e. generating a system of contributions (savings) and access to credit.

Our first action in the development of financing mechanisms dates back to 2011.

RESULTS

MORE GREEN CREDITS

Both models of intervention have allowed the incorporation of green portfolios to be achieved directly and indirectly in twenty MFIs throughout the country. Additionally, in the intervention with UNICAS, 150 loans have been delivered for the acquisition of improved cookstoves and four cooperatives of coffee producers have offered to their partners the financing for improved cookstoves and solar dryers. In addition, these financing mechanisms have promoted the training of about 80 business advisors, as well as 2420 credits granted for the acquisition of BEAT.

On the other hand, it is important to mention a parallel financing mechanism, the Result-Based Financing (RBF), which has a component for boosting the market of solar water heaters, i.e., that seeks to promote credits for the acquisition of these technologies. Thus, this project is being

implemented between EnDev Peru and Municipal Credit and Savings Bank of Arequipa, at national level. As of November 2017, the acquisition of 1356 solar water heaters was achieved through the sales of 25 participating companies.

However, it is worth noting that only 10% of total sales were through an MFI. Given this, we believe that the processes to implement a green portfolio are developing slowly than in an MFI, compared to the sales strategies carried out by trading companies.

Finally, it is necessary to mention that at present the EnDev Peru Project is drafting, together with the Finance mechanisms for low-carbon development (FinanCC Peru), which is developed within the framework of the Global Climate Finance Readiness program (CF Ready), a financial product to generate a new similar fund.

Financing mechanism has allowed the acquisition of solar dryers for members of agricultural producer organizations.

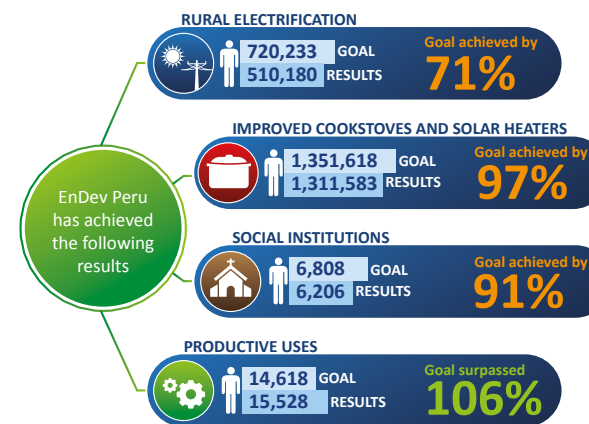


Archive EnDev-GIZ

EnDev Peru has developed a systematic monitoring for the implementation of Basic Energy Access Technologies (BEAT). For that purpose, it uses intermediate results indicators that are grouped in three blocks: institutional environment, offer and supply. Those blocks respond to EnDev's sustainability approach, which proposes to develop actions in each block in order to establish the BEAT market in a sustainable way. Herein, we present the main results achieved during the second phase of the project, accomplished between 2009 and 2017.

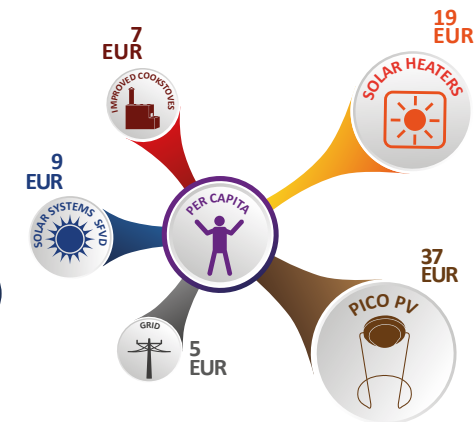
GENERAL OUTCOMES

Number of people, social institutions and companies that had access to Basic Energy Access Technologies through EnDev Peru:



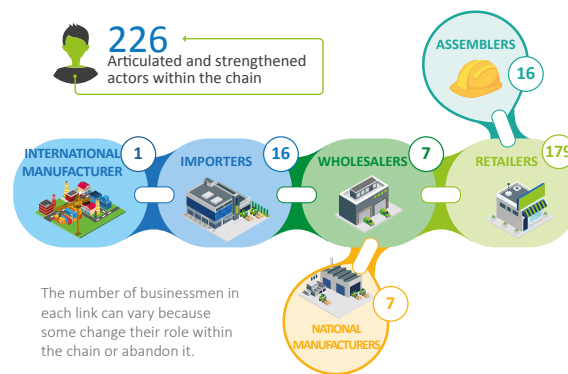
COST-EFFICIENCY

The investment per capita made by EnDev Peru, according to each basic energy access technology:

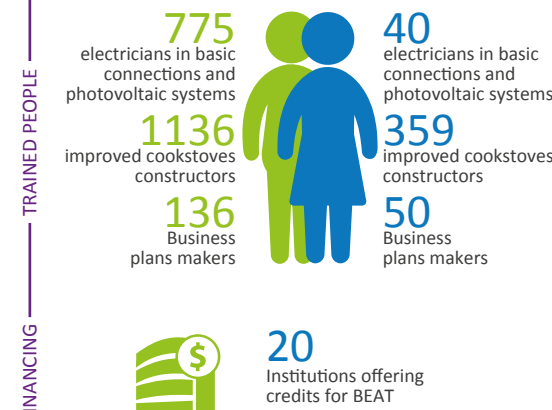


OFFER RESULTS

226 Articulated and strengthened actors within the chain



The number of businessmen in each link can vary because some change their role within the chain or abandon it.



ENVIRONMENT RESULTS

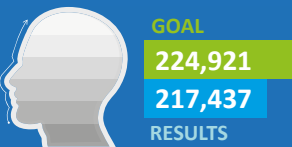
- 9 Public institutions adopted the strategy of improving quality access to energy for lighting
- 8 Institutions, 6 public and 2 private, included actions to ensure sustainable use of technologies
- 3 Institutions, 1 international cooperation and 2 of the civil society adopted the BEATs market approach

1 Million People access BEATs through public financing promoted by EnDev

3 Technologies validation laboratories were strengthened
80 Validated BEATs

Project's contribution between July 2009 and July 2017

Goal achieved by 97 %



Households reported with level 2 cookstoves, according to SE4ALL/EnDev, that reduce health damaged by smoke

Goal achieved by 76 %



TCO₂ reduced by reported BEATs

Goal achieved by 97 %



Jobs promoted by the improved cookstoves distribution chain

Goal achieved by 78 %



Watts of electric power based on solar energy

Goal achieved by 98 %



Public and private leveraged funds

Andean + contemporary

Photographs by Aliette Bretel

As a visual and creative space in this magazine, we now present you the photographs of Aliette Bretel, a photographer who keeps alive both, documentary exploration and purely artistic expression through photography. Therefore, Aliette Bretel demonstrates her passion for documentary photography as for the art of pure image, visions that combine to create a unique style, with a strong reference to memory and the passage of time.

The photographs of her “Andean Vision” and “Peruvian Contemporary Architecture” collections are samples of her documentary soul. The first, a project in which a vision, almost detained in the time of Peruvian Andean passages, is observed. Meanwhile, in the second one, a more critical view can be appreciated: “Peruvian Contemporary Architecture is a project that somehow denounces the abandonment to which several places far from the cities are subject to and the unfair conditions in which some people have to live”.

Thus, we can feel the deep appreciation of the artist for a world often forgotten in time. In this context, we highlight the work of cooperation projects committed to reversing this situation, as is the case of EnDev Peru, reaffirming the arrival of energy as a way to change and improve the living conditions of rural populations.

On the other hand, we also present photographs from a creative process of continuous exploration, together with other images that show her tendency to the purest experimentation through the photographic lens.

Similarly, the work of Aliette when choosing the formats to develop her projects is also perceived. Textures that go from the use of rudimentary “pinhole” cameras, to the use of analog and digital equipment. In addition, the use of different negative films, the handling in the laboratory or in Photoshop, give birth to the result of her work.

Aliette Bretel, Lima, 1981. Graduated from El Centro de la Imagen in Lima, Peru, in 2004; her interest in documentary photography took her to continue her studies in the Association of Graphic Reporters of Argentina (ARGRA), in Buenos Aires, where she started to exhibit her work. In addition, she has been part of individual and collective exhibitions in Buenos Aires, Lima, Ankara and London. At present, Aliette lives in England, and continues working on photography. Her photographs can be acquired through her website (UK/EU) or through the Aida Bosh gallery, in Lima.

www.aliettebretel.co.uk



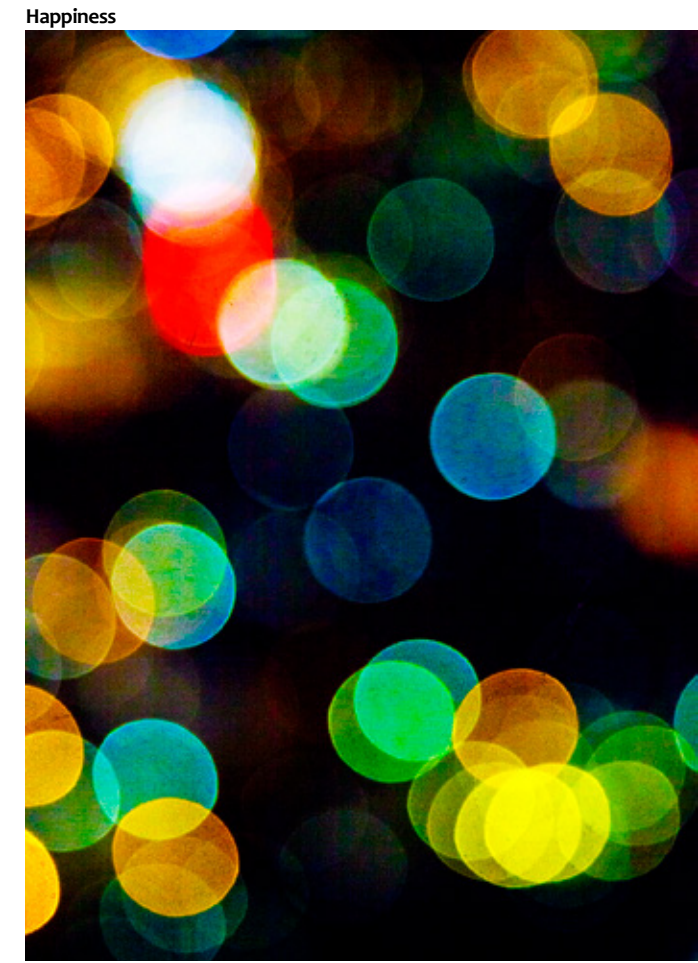
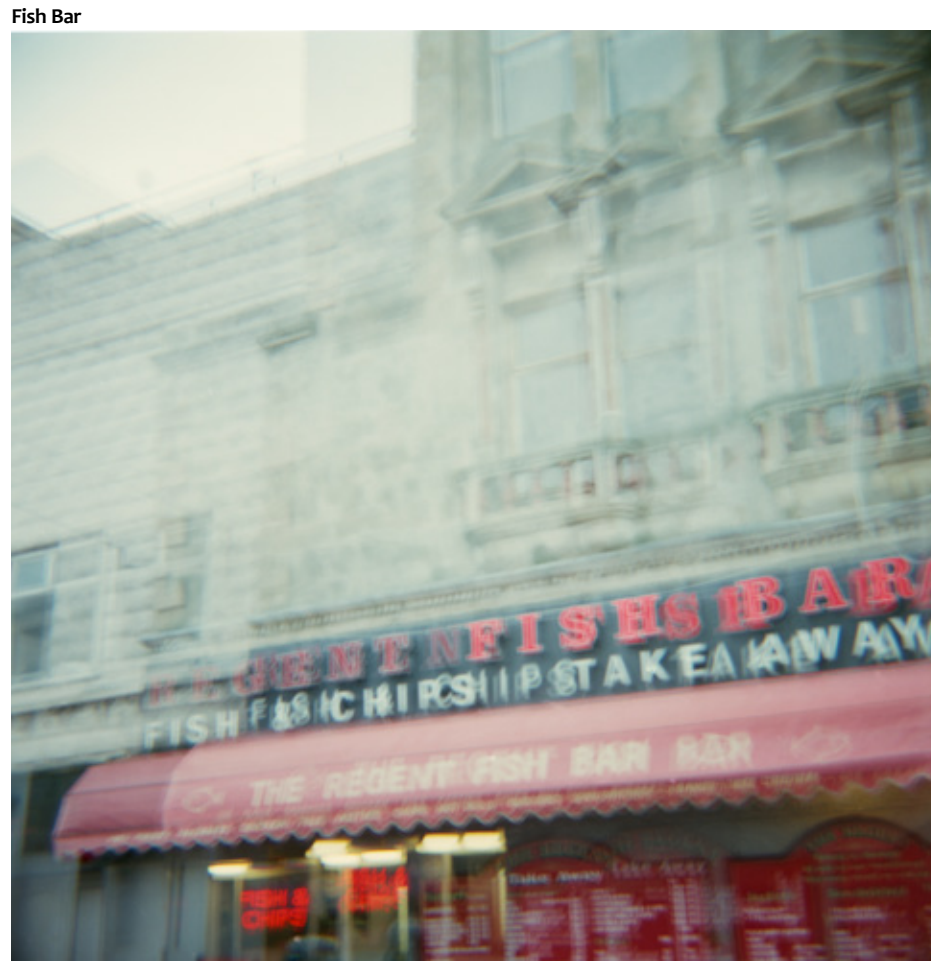
Peruvian couple from the Andes, from the Andean Vision series



Villa El Salvador, from the Peruvian Contemporary Architecture series



Aircraft Static 2.1



Lady holding a map, from the Imaginary series

Lucid Dream

Boosting the supply of portable improved cookstoves

Practical Action

Seeking to overcome the barriers currently faced by firewood improved cookstoves implemented in rural areas of Peru, the Fund for Innovation and Development of Portable Firewood Cookstoves (FIDECOP), promotes the innovation and development of portable firewood improved cookstoves, through incentives aimed at small and medium enterprises.

By **Rafael Escobar**, Manager of the Programme of Energy, Infrastructure and Basic Services of Practical Action and **Mabel Carhuancho**, Professional in Technologies of the same programme

Mario Endara, together with his wife, in his workshop of improved cookstoves in Putina, Puno. The family runs the Koyllor company, pioneer in artisanal manufacturing of improved cookstoves for almost 20 years.

According to the National Institute of Statistics and Informatics (INEI), at present, in Peru there are two million families (32% of the population), mainly located in rural areas, who do not have access to modern fuels or clean technologies for cooking. These families depend mainly on traditional biomass (firewood and dung) as the main source of energy for cooking their food, which is used in three-stone open fire or traditional cookstoves. This practice affects negatively their health, exposing the family to household indoor air pollution, since the cooking is commonly carried out in the same space of the dining room or even in the bedrooms.

There is great demand of firewood improved cookstoves in rural and peri-urban areas.

In order to face this problem, since 2009, public institutions, social programmes, the civil society and the international cooperation have installed around 450,000 fixed improved cookstoves (ICS), in other words those built with bricks, adobe and mud, which represents an important improvement in the quality of the life of families and in the reduction of greenhouse gases emissions.

In addition, to meet the cooking habits of families, up to 40 models have been developed, mainly with the rocket-type combustion chamber. However, this type of cookstoves face a series of limitations, such as the ambiguous quality of the materials with which they are manufactured, the difficult transportation logistics, the lack of standardization in their installation and the lack of an adequate after-sales service.

In this regard, the most critical limitation might be the lack of after-sales service, a factor that was originated because, at that time, there was no offer of local part, repair and replacement suppliers of improved cookstoves in the areas where they were installed.

In this context, there is great demand of firewood improved cookstoves in rural and peri-urban areas. However, the supply is deficient or has limited production capacities, which affects negatively the sustainability of access to an efficient technology for cooking, causing families to return to use the three-stone open fire or traditional cookstoves.

STRENGTHENING THE PRODUCT AND THE SUPPLY

The Fund for Innovation and Development of Portable Firewood Cookstoves (FIDECOP), financed by the Department for International Development (DFID) together with the EnDev Peru Project and implemented by Practical Action in Peru, aims to motivate small and medium companies to invest in the innovation and development of portable firewood improved cookstoves (PFICS), so that they meet the needs of rural and peri-urban markets, adapting their production at different scales with competitive prices.

The approach used by FIDECOP has been the results-based financing (RBF), to which an element of innovation and development (I+D) has been added. Due to this, some temporary monetary benefits have been given to manufacturing companies of PFICS, after complying with a series of agreed activities.

In this respect, each company that is benefited from FIDECOP shall comply with three implementation stages: 1. Development and innovation of a prototype of firewood improved cookstove; 2. Preparation of business and marketing plans and international internships, as well as certification of the improved cookstoves model before the National Training Service for the Construction Industry (SENCICO); 3. Manufacturing and commercialization of improved cookstoves in rural and peri-urban areas. In this way, FIDECOP

seeks that economic incentives are invested and capitalized in companies that manufacture improved cookstoves.

Thanks to the I+D approach, FIDECOP benefited seven innovative entrepreneurs to develop their own prototypes of portable firewood improved cookstoves. During the execution, entrepreneurs strengthened their technical and financial capacities to enter the market with models of certified portable improved cookstoves. It is worth noting that in order to reach the aforementioned certification, prototypes had been through a process of evaluation of SENCICO's improved cookstoves laboratories, based on three aspects: efficiency, safety and concentration of pollutants (carbon monoxide and particulate matter 2.5)

Entrepreneurs invested the economic incentives received to improve their production capacity.

Finally, the results obtained proved that new models of portable cookstoves are in some cases very efficient, thanks to the design of the combustion chamber. Furthermore, other of the advantages identified were the ease of travel, since they do not weigh more than 45 kg and the simplicity of their installation. In addition, the required maintenance is not as complex as that of the fixed models.

MARKET INSERTION

The insertion of a new product into a market, as portable cookstoves, requires a considerable investment in the production and diffusion of their benefits to the target group. For that, companies were asked to execute the strategies drafted in their business and marketing plans. Entrepreneurs invested the economic incentives received to improve their production capacity, acquiring new equipment and machinery. Moreover, they hired publicity for the promotion of their technologies. For example, the company "Cocinas Mejoradas Multiusos", with headquarters in Cajamarca, invested in equipment for its workshop, managing to increase its production from 50 to 300 improved cookstoves per month. Similarly, the artisan company "Koyllor", in Puno, increased its production from 25 to 250 improved cookstoves per month.

However, there are still some limiting factors, one of them is the wrong business vision, by which the company seeks to assume all the roles of the links in the commercialization chain, which has generated significant delays in learning about how to market the product in rural areas. Another limitation is the high price of the product. Depending on the model, its cost may vary between 280 and 780 Soles. Naturally, one of the barriers of this market is the low economic availability of families to pay these sums of money. In this sense, people in rural areas are sensitive to the prices of products, prioritizing those that provide more benefits from their point of view or perception.



Practical Action

Based on the above, the opportunity to generate strategic alliances with cooperatives of producers and savings and credit cooperatives was identified, so that customers may have access to financial credits to acquire the cookstove of their preference, as well as for entrepreneurs to invest in the production of a greater number of cookstoves.

Julio Cabanillas, from Practifogon company, in Cajamarca, shows a portable improved cookstove model.

In conclusion, the lessons learned for FIDECOP show that the market approach has allowed entrepreneurs to insert themselves more effectively in the market, as well as to innovate towards the production of new models that fulfill with the preferences of their customers. However, it is worth highlighting that these are long processes, which require the accompaniment and technical assistance to help to not only strengthen the market base (producers), but also boost the entire commercial chain involved.



Archive EnDev-Giz

Entrepreneurs from different parts of the country, benefited by FIDECOP, got together in an encounter organised by Practical Action.

FIDECOP

The Fund for Innovation and Development of Portable Firewood Cookstoves (FIDECOP) is a project financed by the Department for International Development (DFID) together with the EnDev Peru Project.

FIDECOP is implemented by Practical Action with the objective to motivate small and medium companies to invest in innovation and development of portable firewood improved cookstoves, so that they satisfy the needs of rural and peri-urban markets, by offering competitive prices.

www.fidecop.com

Alliances to boost the market of thermal renewable energy

With more than 30 projects promoted and the installation of more than 17000 thermal renewable energy technologies, FASERT is an initiative aimed at boosting the commercial chain of clean technologies such as improved cookstoves and photovoltaic systems. Today, FASERT wants to expand its supply to the productive area, as well as generate new funding sources.

Angélica Fort, Technical National Coordinator for FASERT-IICA and María Pía Medicina Morán, Communicator for the same organisation

“After saving some money, I bought this portable Munay Q'oncha improved cookstove. I wanted my kitchen to look pretty that's why I painted the wall that was black from the smoke. I like it because now I have my own oven at home. I collect firewood, I don't buy it. Now, I save time because I don't use much firewood; I spend less time collecting it”.

Maruja Quispe Quinto,
Community of Ampay, District of Pisac,
Province of Calca, Cusco

As a response to the commitments acquired in the Paris Agreement in 2015, within the United Nations Framework Convention on Climate Change (UNFCCC), which establishes actions to reduce greenhouse gas emissions (GGE); and following with the Sustainable Development Goals (SDG), the Fund for Sustainable Access to Thermal Renewable Energies (FASERT) was born as result of an alliance between the Inter-American Institute for Cooperation on Agriculture (IICA) and the EnDev Peru Project, in order to boost the market of thermal renewable energy technologies (TRET), seeking to improve the quality of life of rural and peri-urban populations in Peru, through access to affordable, safe, sustainable and modern energy .

FASERT, through the strengthening of entrepreneurs that manufacture, assemble and distribute TRET, as well as by raising awareness in citizens and promoting the creation of links with the financial sector, promotes opportunities for the most vulnerable populations to gain access to these technologies.

With two execution phases and more than 30 projects in different regions of the country, which resulted in the installation of more than 17000 TRET as of June 2017, FASERT is the first initiative exclusively aimed at boosting the market value chain of these technologies, seeking to validate its intervention model and expand its clean technologies supply, especially for productive uses, with emphasis on technologies related to agriculture and the rural sector.

In this context, IICA includes within its strategic objectives, the resilience and comprehensive risks management in agriculture; thus it considers pertinent to continue its intervention with an integral approach that provides rural families with sustainable access to modern energy technologies and services through market mechanisms. Furthermore, to continue expanding, IICA seeks to manage new funding sources for FASERT through different mechanisms.

In this regard, it is about identifying possible new allies among agencies and entities in international cooperation, public bodies, private institutions and foundations interested in investing in renewable energies and boost market mechanisms around them. Besides, it participates in national and international funding calls.

Consequently, in September 2017, IICA, within the framework of FASERT, presented to the call of the British Embassy in Lima to finance innovative

To continue expanding, IICA seeks to manage new funding sources for FASERT.

projects that want to increase access to clean energy, especially in remote areas of Peru, as well as reduce carbon emissions and contribute to economic growth, through the Project: “Support entrepreneurs and families located in rural areas of Peru with access to solar energy”, with PowerMundo, a company of photovoltaic energy technologies, as strategic ally.

As winner, this project was launched last November 7, in order to promote and expand the market of renewable energy, specifically, from solar power. Six undertakings participates in the project, which were already distributing TRET, and that now seek to offer photovoltaic products to meet the demand for electricity in the

northern Highlands, north-eastern and Andean regions of the south of the country. Thanks to this new alliance, more than 500 families will have sustainable access to clean energy from a quality product and service, using appropriate financing mechanisms and receiving a guarantee.

Finally, we can highlight that after four years of implementation, FASERT is validating its model of market intervention, expanding it to renewable energy technologies, especially the productive ones, as well as seeking for new funding sources. In this sense, we invite interested institutions, with common objectives, to continue adding efforts to boost the market of renewable energy technologies in Peru.

Thanks to this new alliance, more than 500 families will have sustainable access to clean energy.

PROGRAMME MILESTONES

FASERT GOALS

30,000

Thermal renewable energy technologies (TRET) for family use in households

1,058

for productive use

58

for community use

I PHASE
2015-2016

9
Projects

1.2
MILLION
dollars allocated

Improved cookstoves
Biodigesters
Improved brick ovens

II PHASE
2017

25
Projects

1.3
MILLION
dollars allocated

Improved cookstoves
Biodigesters
Solar heaters
Solar dryers
Photovoltaic systems

As of June 2017, FASERT has managed to promote the sell of 7000 technologies, mostly improved cookstoves, thus increasing sustainability of access to a commonly subsidized technology. From these technologies, 27% have been acquired through credits.

The technologies installed by the projects promoted by FASERT prevent the emission of 8924 MT of CO₂ into the environment.



After four years of work, FASERT includes photovoltaic technologies in its portfolio, increasing like this the supply of the undertakings it seeks to promote.

FASERT-IICA

The Inter-American Institute for Cooperation on Agriculture (IICA) is the organization specialized in agriculture in the Inter-American System that supports the efforts of member states to achieve agricultural development and rural well-being.

Within this context, the Fund for Sustainable Access to Thermal Renewable Energies (FASERT) was born as result of an alliance between IICA and the EnDev Peru Project, in order to promote sustainable access to modern energy technologies and services, being the renewable thermal energy systems the starting point.

www.iica.int
www.fasert.org

An incentive for solar water heaters

Caja Arequipa, a microfinance institution committed to social development and the care of the environment, has been managing a results-based incentives model that seeks to boost the commercialization of solar water heaters. Currently, the Project has benefited 5000 users in 18 regions of the country.

Por **Luis Alberto Gallegos**, Manager of Business Strategy of Caja Arequipa

Different companies of solar water heaters have managed to expand their sales thanks to the boost provided by Caja Arequipa.



Archive EnDev-GIZ

In 2012, in the search to promote a spirit of social responsibility and care for the environment, Caja Arequipa formalised its commitment to start with social responsibility activities. Then, in May 2013, a strategic alliance was executed with the Multilateral Investment Fund (MIF) of the Inter-American Development Bank (IDB) and the International Financial Corporation (IFC) of the World Bank Group; an alliance whereby Caja Arequipa became the first financial institution in Peru to have the support of EcoMicro, a programme that works with microfinance institutions to develop green financial products in Latin America and the Caribbean.

In this context, Crediluz was born as the first product of this type, a low cost credit, whose purpose is to improve quality of life of low-income people by using clean and renewable energy.

Following this line, the EnDev Peru Project presented a proposal to implement a Results-Based Financing (RBF) Project through Caja Arequipa, to boost the market of solar water heaters in Peru. Thus, in 2016, Caja Arequipa took on the challenge of implementing this project, by executing an agreement with EnDev Peru. First, an executive evaluation was carried, to then develop the necessary strategy to achieve the objectives set.

In that sense, Caja Arequipa is engaged in searching for a balance between economic and social profitability, also pointing towards the care for the environment. Therefore, work has been done in developing responsible finances, which are one of the pillars of the institution, seeking to offer alternatives that are positive for social and environmental development. It is worth noting that no economic return is expected with this type of projects.

IMPLEMENTATION OF THE PROJECT

The Project began by executing an incentive agreements with 15 companies engaged into the production and commercialization of these products, through the RBF. Currently, the Project is working with 25 companies, reaching a coverage of 18 regions of the country. Also, as of November 2017, 1042 solar water heaters have been commercialized, representing a benefit for

about 5000 people, who have hot water in their households through clean and renewable energy. It is worth pointing out that this has prevented the emission of 772 tons of CO₂ into the environment.

According to the RBF model, incentives are given to companies once they have reached their goals. Thus, to date, more than 634000 Soles have already been delivered. In that sense, the model operates with the participation of verifying agents that guarantee that the product sold by the company has been installed. In addition, evaluation meetings are held regularly with EnDev Peru to both know how the project has evolved in relation to the goals set, and to know its status of operation and management.

As for the procedure of acquiring a solar water heater, companies start by carrying out promotional work. Then, the customer arrives and asks for the product according to the capacity that best fit their needs. Thus, a contract is signed between the buyer and the company, which carries out the installation of the product. Then, once the installation is carried out, the company prepares a report on each case, and submits them to Caja Arequipa, which in turn informs the verifying agent, who finally confirms that the product has been installed and is operating. After completing these steps, the payment of the incentive is placed to the company that sold the product.

At this moment, these companies are operating in different cities nationwide, taking into account that their development has been mainly in urban areas. However, it is expected that this kind of green credits and products are also available to people of rural areas, that is, to reach increasingly remote areas.

Regarding the term of the RBF, the Project is due in 2019. For that, the goal of Caja Arequipa is to reach 6300 solar water heaters installed for domestic use and another 700 for business and productive uses. In this sense, part of the objective is to keep this project and continue expanding the green credit portfolio and other similar projects that are in line with the social and environmental responsibility, with which the institution is committed.

Caja Arequipa is engaged in searching for a balance between economic and social profitability.

CAJA AREQUIPA

Caja Arequipa is a financial institutions leader in the microfinance system in Peru, whose mission is to improve the quality of life of local entrepreneurs, offering fast and flexible financial services. Besides, Caja Arequipa is also a member of the Global Alliance for Banking based on Values (GABV), an international alliance made up of 40 financial institutions from the 5 continents, oriented to triple bottom line objectives (economic, social and environmental) around a management ethical and transparent banking.

www.cajaarequipa.pe

Why we will miss EnDev Peru?



After 10 years in Peru, the EnDev Project has to finish its work in the country next 2018. Carsten Hellpap, Director for the programme at a global level, together with Gunnar Wegner, responsible for the programme for the Latin-American region, leave us some reflections on the performance of EnDev Peru and its scope and contributions to the programme around the world.

By Carsten Hellpap, Director for the EnDev Programme at global level and Gunnar Wegner, Responsible for Latin America for the same programme

Countless families in different rural areas of Peru have been benefited from initiative promoted by EnDev Peru.

Energising Development (EnDev) is a global programme with activities in 29 countries, whose main objective is to provide access to affordable, safe, sustainable and modern energy to more than 20 million people. In this sense, our work seeks to use the funds of the programme as efficiently as possible, proposing access equivalent to 20 Euros per person. To achieve this goal, we have created a structure of constructive competition among projects from different countries, so that each one looks for innovative approaches, contributing to maximize the number of people with sustainable access to energy with available funds. This competition among projects has resulted in a huge wealth of ideas, with EnDev Peru being a very ingenious project in this task. Thus, in this article we will try to highlight some of its most important and positive achievements.

SUSTAINABILITY

One of the greatest challenges of our work is sustainability of access to energy. Therefore, we recognize that not everything we have achieved is sustainable and that a project in many cases cannot ensure its results in a lasting way since one day it will end. Given this situation, we have tried to contribute to the development of markets, offering products and services to low-income families. Within this case, EnDev Peru has maintained a strong emphasis on the proposal to develop a social market, in both, improved cookstoves and in electrification resources. Perceiving access to energy as a triangle between the demand, supply and political framework, the Project has worked in parallel with the population, suppliers and political counterparts. We especially believe that this comprehensive approach has contributed enormously to the success of the project.

EVALUATION OF TECHNOLOGIES

Another very important achievement has been the creation of a national standard for improved cookstoves and the evaluation of a great number of them in cooperation with the National Training Service for the Construction Industry (SENCICO), which ensures that customers can choose from a variety of high quality products. Thanks to this, within the global scope, Peru has turned into one of the leading countries in the institutionalization of the evaluation of improved cookstoves. In fact, our colleagues applied some original techniques that have inspired us a lot. In the laboratory, they handled some Inkawasi cookstoves with hammers and crowbars to simulate their aging. Then, these cookstoves were evaluated to know an effect

EnDev Peru has maintained a strong emphasis on the proposal to develop a social market.

similar to their continuous use for many years, idea that has contributed to our understanding of the shelf life of these technologies that we have been promoting.

IMPROVED ENVIRONMENTS

Searching for a new approach to sustainability, EnDev Peru developed a pilot project, together with NGO G&C Generating Capacities in Health and Environment, in which families not only purchased an improved cookstove, but also improved the entire environment where the cooking is carried out: we motivated them to level the floor, order their cooking tools, paint the walls and build tables and chairs. Thus, the cooking environment went from being a place full of smoke to a place full of pride. I want to highlight, that it was a real pleasure to have been received by some of these women in their kitchens, which they themselves had transformed. This approach, which is not limited to the technology itself, is something that shall be replicated in other countries.

PRODUCTIVE USES

Beyond improved cookstoves and lighting for rural households, EnDev Peru is also one of the leaders of the EnDev Global Programme, about the promotion of the productive use of energy. Within the different activities and initiatives, it is worth noting the collaboration with the Competitiveness Compensation Programme (Agroideas), which has allowed strengthening production cooperatives, for example, in the coffee field. Said collaboration, very successful, is an excellent demonstration of the different links between energy and agricultural productivity, which is something that we will seek to replicate in other countries.

GOVERNMENT PARTICIPATION

Compared with EnDev projects from other countries, EnDev Peru has been especially very well connected within the Peruvian energy sector and in Latin America in general. Although its work has been for a very specific topic, it has not been developed in isolation. In this sense, I would like to highlight its participation in the national campaign “Half a Million Improved Cookstoves for a Smoke-free Peru”, an initiative that did not achieve the installation of half a million technologies, but allowed the creation of strong dynamics and visibility around the topic, integrating a wide variety of actors in the sector.

VISIBILITY

It is worth highlighting another point, for which several similar projects were able to learn from

our Peruvian colleagues: the presentation of the topic of “energy access” for the public. In this context, at present, globally, there are 3000 million people without access to energy to modern cooking and 1300 million people without access to electricity. However, a reality that affects so many people is still a topic with little visibility. EnDev Peru has made an excellent job to make the subject visible and show all stages of its work, among others, through Amaray magazine. No other EnDev project has perfected the dissemination of public information as much as EnDev Peru has done. In addition, one of the most impressive moments to create visibility on the topic of access to energy for cooking, was when the renowned Peruvian chef Gastón Acurio and former secretary general of the United Nations, Ban Ki-moon, prepared together a typical Peruvian dish in an improved cookstove using the EnDev logo.

FAREWELL

Implementing a project is something that is never easy, even more, when it comes to such a successful and innovative project as EnDev Peru. However, the good economic development of Peru has reached a level that makes impossible to continue mobilizing additional resources from EnDev donors, to continue our work in Peru. To our impression, we believe that access to modern energy is now quite advanced in the country and that the market has achieved a good level of maturity, offering a variety of products and services, with the presence of suppliers in various regional capitals and, very important, showing a political interest in the topic.

On the other hand, Peru has reached the 87th position in the index of human development (IHD), prepared by the United Nations Development Programme (UNDP), with the following countries on that list, which are part of the EnDev programme: Indonesia (IHD 113) and Vietnam (IHD 115). Under this perspective, our donors have decided to focus the work of EnDev work on the least developed countries. Therefore, while there is still much to be done for EnDev in other countries, our role in Peru must end.

Finally, we would like to thank all people who participated in this trip to energy access: the team of EnDev Peru and our GIZ colleagues, our partners in both, the public and private sectors, organizations with whom we have cooperated and, maybe most importantly, beneficiaries, that trusted in the solutions that we proposed. To all of you: Thank you!

EnDev Peru has made an excellent job to make the subject visible and show all stages of its work.

The EnDev Peru Project has seek to contribute to the construction of a better future for vulnerable populations.

“Finally, we would like to thank all people who participated in this trip to energy access”.

Carsten Hellpap,
Director for the EnDev
Programme at global level

EnDev

Energising Development (EnDev) is a programme of access to energy financed mainly by the governments of the Netherlands and Germany, which aim is to provide access to energy to more than 20 million people around the world, being the German Cooperation, implemented by the GIZ, the executor in most of the cases.

EnDev intervenes in 29 countries, from which the majority are in Asia and Africa. In Peru, EnDev has been working since 2007 trying to build public-private alliances that support markets creation that may benefit those populations that lack adequate energy services and technologies.

www.endev.info
www.endevperu.org.pe

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