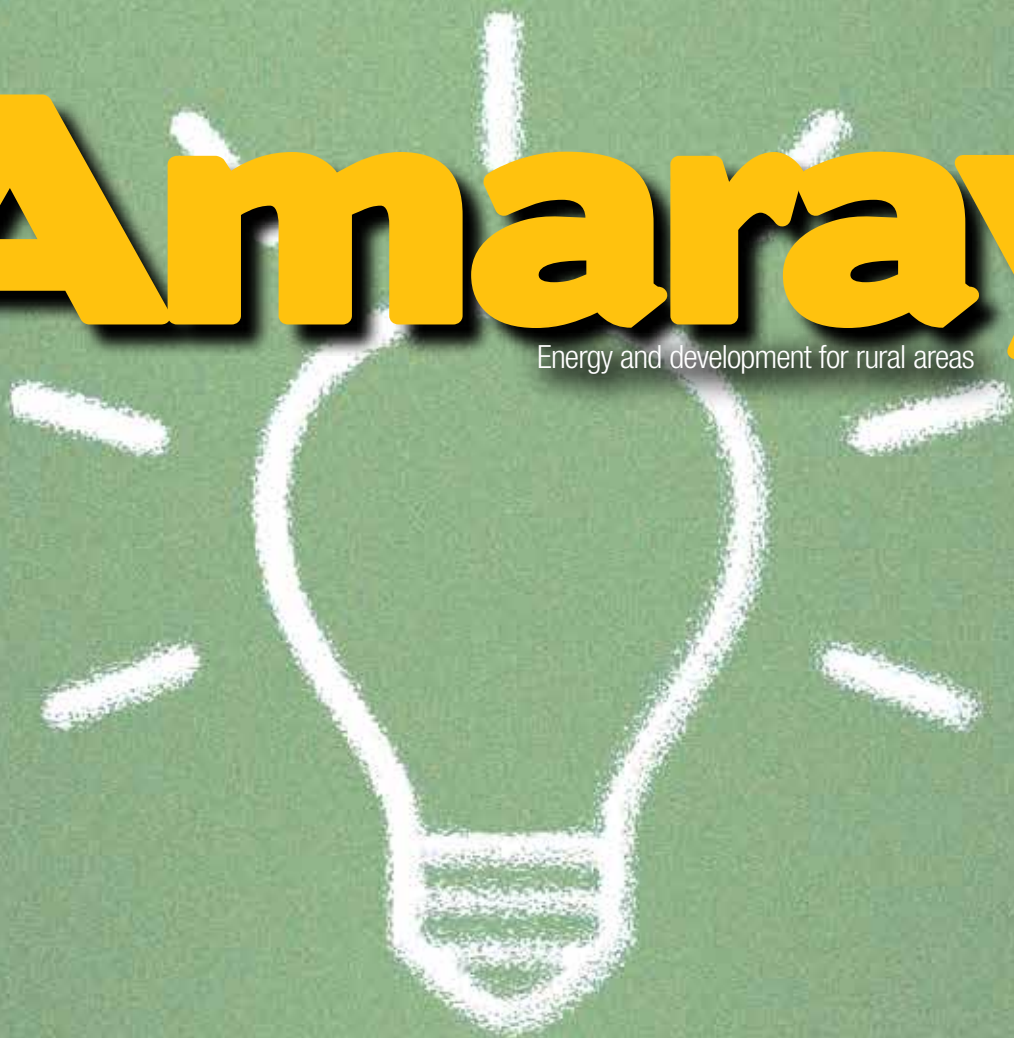


July 2015

Amaray

Energy and development for rural areas

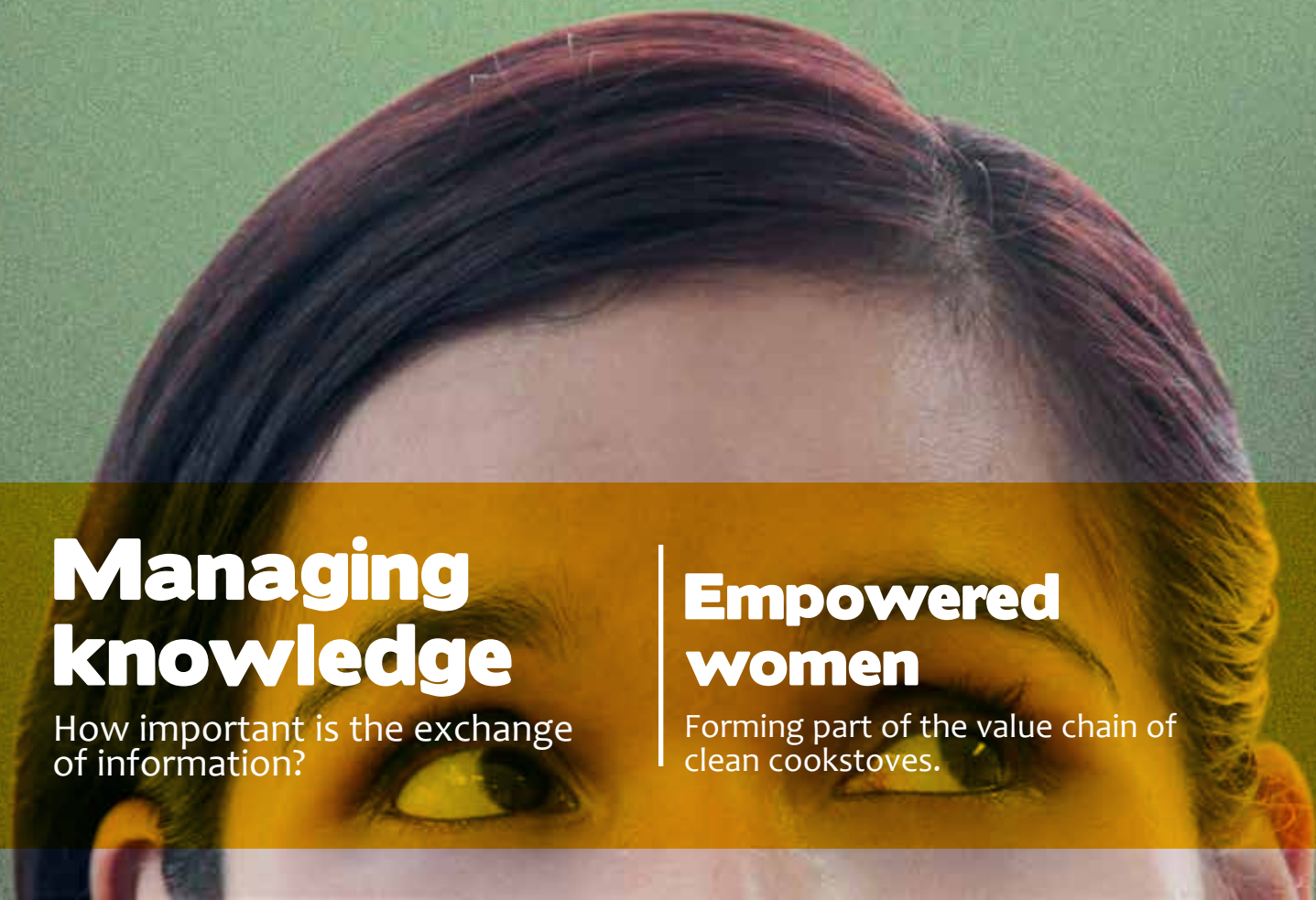


Managing knowledge

How important is the exchange of information?

Empowered women

Forming part of the value chain of clean cookstoves.





Development of concepts

Lima, Peru

A group of specialists on access to energy develop proposals and methodologies in an inter-institutional workshop. This represents one of the early stages to define the information and tools that later will be made available to other actors.





Exchange of information

Cajamarca, Peru

Advisors for the EnDev Programme exchange information during a regional workshop in Cajamarca. Since 2013, the four countries from the Latin-American region, where the program works - Honduras, Nicaragua, Bolivia and Peru – share a single integrated monitoring platform.





Making the most of tools

San Martín, Peru

Regional advisor for the EnDev Peru Project shows a teacher and his wife how they can use computer resources. They live in Marisol, a community located in the region of San Martín, which has a river hydrokinetic turbine, which provides electricity and luckily in the near future also internet.



2. Participación directa y BO en el M&A



Gabriela Gemio, advisor for the EnDev Bolivia Project, shares her experiences in a Latin-American regional workshop by the EnDev Programme.

ecta y activa de todo el equipo
E.

Dear readers:

It is my pleasure to share with you the eighth edition of the magazine Amaray, the central theme of which is knowledge management regarding clean cookstoves.

We continually witness the creativity with which many organisations and institutions plan and implement their projects or proposals. Nevertheless, for the moment much of what we have gained or learned from experience remains in the air, something that we cannot allow because it is exactly this that generates the knowledge that we have to capitalise. So, how can we transform this knowledge into economic and social value? To answer that question it is necessary to create a virtuous circle in which knowledge -properly managed- leads to good public policy and promotes the conditions in which new knowledge that can be applied in future interventions can be generated, published and divulged.

2011 saw the start of the widespread introduction of clean cookstoves in Peru, however it is unusual to exchange and reflect on such experiences and take decisions that enable changes or transformations.

Thus in this edition we present the practical aspects not only of the large-scale construction of clean cookstoves, but also monitoring and sustainability, seeking to describe and share the work of public and private institutions in favour of exchanging information and creating links between them.

Finally, I motivate you to include in your regular activities the documentation of experiences and lessons learned, and to use them to define and direct improvements in your future interventions.

My regards to you all,

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

www.endevperu.org

Special. Managing knowledge.
How important is the exchange of information?

12

Archive EnDev-GIZ



Archive EnDev-GIZ



Ideas are the main source of knowledge. Then, it is necessary to encourage their exchange and discussion to define concepts and tools that influence positively on the development of vulnerable populations.

State Policy. Homes free from indoor air pollution. Interview to Manuel Peña, representative of PAHO.	10
Sustainable Market. Micro-franchise. An initiative of the EnDev Bolivia Project.	12
Monitoring. UNOPS. Effective results-based monitoring.	24
Opinion. EnDev Peru. Interview to Ileana Monti, monitoring advisor.	28
Energy for cooking. EnDev Peru. Large-scale adoption of improved cookstoves.	30
Research. UPCH. A study for the adoption of improved cookstoves.	34
Financing. FASERT. Adding influence for projects execution.	38
Gender Energy. EnDev Peru. Empowered women and improved cookstoves.	46
Portraits. Stories of success. Women producing improved cookstoves.	50
International. WHO. Guidelines for improving indoor air quality.	54

Financiado por



Implementado por



CREDITS

General Director: Ana Isabel Moreno Morales.

General Editor: Carlos Bertello.

General Coordination: Irene Arbulú.

English Translation: Peter Spence, Andrea Colchao.

Contributors: UNOPS Peru, UPCH, Swiss TPH, Carlos Cervantes, ComVo Mujer, Agnes Soares da Silva and Karin Troncoso.

Design and Layout: Felipe Chempen , Carlos Bertello.

Printing: Gráfica Bracamonte.

Amaray is a publication for social purposes published by the German Cooperation, implemented by GIZ, through the Energising Development Project EnDev-GIZ in Peru. For more information, write to proyecto.endev@gmail.com or log on to our website.

www.endevperu.org

Deutsche Gesellschaft für
Internationale Zusammenarbeit
(GIZ) GmbH

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

giz-peru@giz.de

Amaray ©

Energy and development for rural areas

July 2015, N° 8

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

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



Homes free from indoor air pollution

Manuel Peña, representative of the Pan-American Health Organisation (PAHO) in Peru, emphasises the need for policies that enable us to address indoor pollution. He says that in Peru this problem is the principal environmental health risk, leading to more than 6,000 premature deaths each year.

Improved cookstoves with chimneys are a technology that allow reducing pollution caused by firewood burning for cooking.

What can you tell us about the effects on public health of indoor pollution?

When people burn solid fuels on open fires, and have no ventilation in their homes, the result is emissions that can be 100 times higher than the levels recommended by the World Health Organisation (WHO) in its air quality guidelines. Such contaminants are carcinogenic and cause cardiac and pulmonary illnesses, as they weaken the immune response, reduce the blood's ability to carry oxygen and cause generalised inflammation and ischemia, as well as other physiological disorders.

In Peru, indoor pollution is the main environmental risk to health and causes more than 6,000 premature deaths a year. 34% of deaths are caused by cerebrovascular accidents, 26% by ischemic cardiopathies, 22% by chronic obstructive pulmonary disease, 12% by pneumonia and 6% by lung cancer. These diseases are caused principally by high levels of fine particles in suspension and carbon monoxide emitted by the combustion of solid fuels such as wood, coal, animal dung and farm waste on open fires, cookstoves or inefficient lamps.

How is the WHO/PAHO responding to this problem throughout the world and particularly in the countries of Latin America?

The WHO/PAHO strategic plan for 2015-2019 includes a reduction of at least 5% in the percentage of the population that uses solid fuels in the member states in which more than 10% of the population are users.

In this context the new document “WHO guidelines for indoor air quality - household fuel combustion” underlines the need to improve household access to less polluting sources of energy such as liquefied petroleum gas, biogas, natural gas and ethanol or electricity, especially in low and medium-income countries. The purpose of this directive is to help countries to introduce cleaner technologies, improve air quality in poor households, reduce pollution-related illnesses and save lives.

In Peru public investment has been carried out to overcome the problem of indoor pollution, what is your opinion on the experience and further challenges in this country?

Peru has made a great effort to address the problem of using solid fuel for cooking, with a national programme that has installed around 300,000 efficient cookstoves with chimneys and, more recently, the distribution of cookstoves using liquefied petroleum gas (LPG).

From the health point of view, the transition to clean fuels such as LPG, electricity or biogas is the ideal solution. Furthermore, one of the main challenges is to identify the sectors in which clean fuels for cooking can be promoted successfully, for example people who use firewood and have access to LPG or electricity but buy solid fuels and have already introduced some changes to their cooking habits.

The second challenge would be to study the impact on health of the different solutions implemented in Peru, in order to understand how cooking habits change, what services the beneficiaries of these technologies are receiving and how cleaner technologies can be encouraged to ensure better indoor air quality for users of solid fuels.

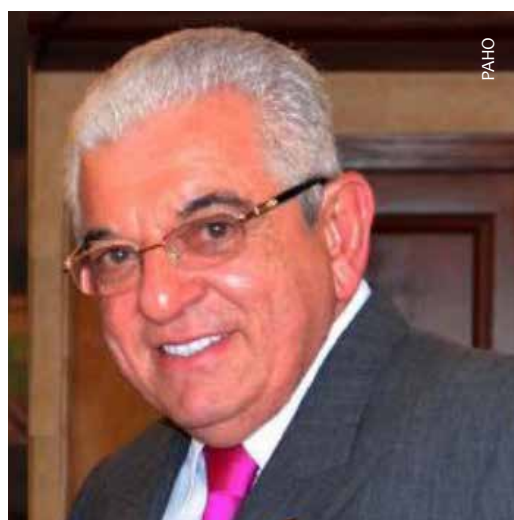
Who do you think are the actors involved in implementing sustainable public policies to improve indoor air quality?

I think that so far the the Ministry of Energy and Mining, the Ministry of Environment and the Ministry of Development and Social Inclusion are the bodies principally involved. However the Ministry of Health also plays a fundamental role given that from an exclusively health point of view, very different solutions are being proposed to resolve this problem.

The health sector is also a strategic ally that has primary healthcare facilities all over the country permitting privileged access to users of solid fuels, which could be of great help in encouraging new cooking practices as well as collecting strategic information on evidence of the impact of the different measures on health.

The education sector may also have a strategic role in promoting better cooking practices from primary school level for users.

“From the health point of view, the transition to clean Fuels such as LPG, electricity or biogas is the ideal solution”.



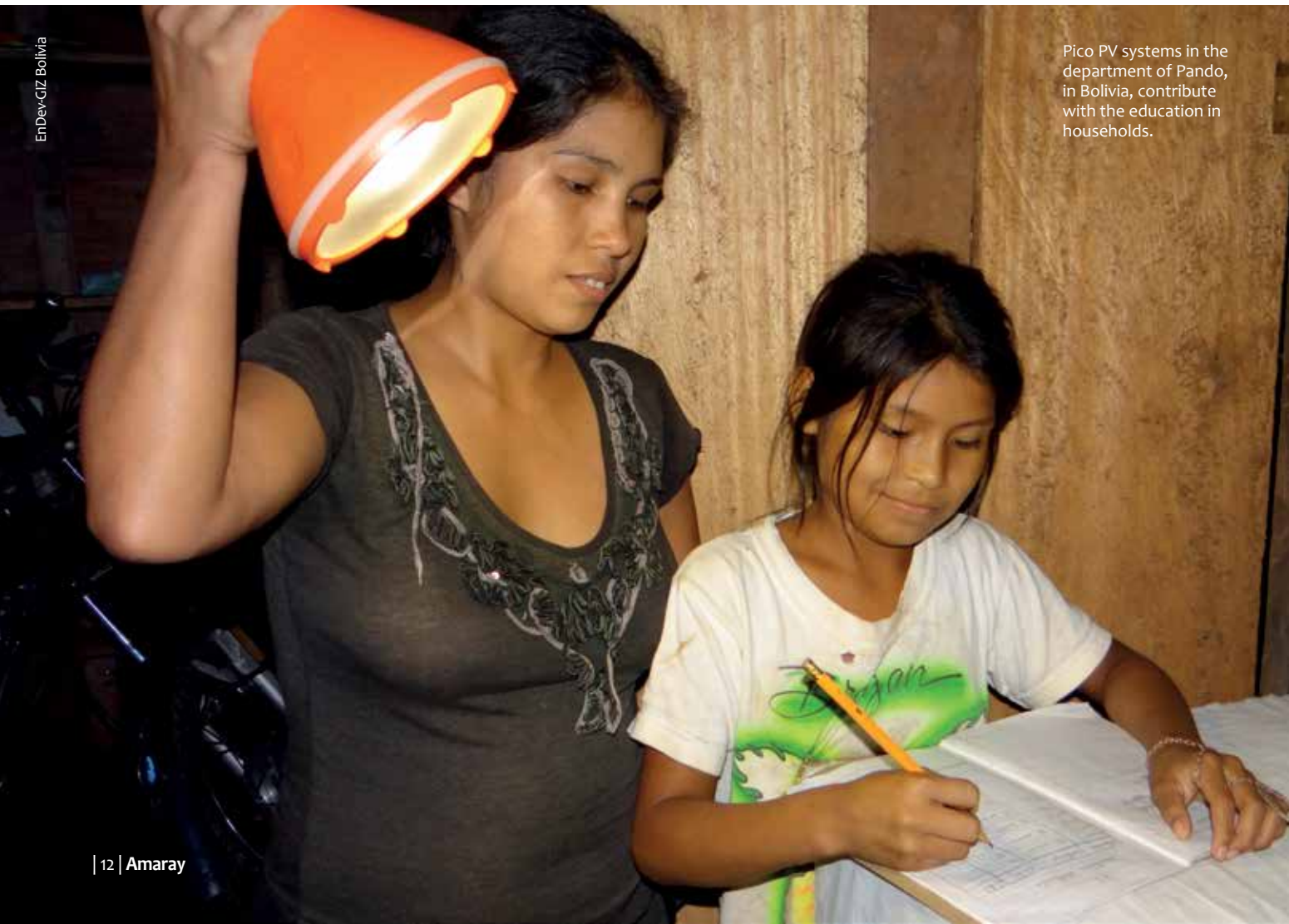
Manuel Peña, representative of the Pan-American Health Organisation in Peru.

Micro-franchise programme for pico photovoltaic systems

The EnDev Bolivia project will start this initiative in the Departments of Potosí and Cochabamba together with the ONG Energética. This will increase the number of sales and distribution points for this type of energy in rural areas where the conventional electricity supply does not reach.

Interview with **Guillermo Vélez**, head of the Energy for Lighting Unit of EnDev Bolivia; **Arturo Loayza**, technical advisor to the same unit; and **Mariana Butrón**, head of the Improved Cookstoves Unit.

By **Carlos Bertello**, editor of the magazine Amaray.



Pico PV systems in the department of Pando, in Bolivia, contribute with the education in households.

What is a micro-franchise?

G. Vélez: The micro-franchise strategy is something we are supporting together with an ONG called Energética. The idea is to increase the number of sales and distribution points for pico photovoltaic lights (pico PV) in rural areas not served by the conventional electricity grid. In these places micro-franchises will receive systems at beneficial prices so that they can sell them at a profit. They will also be given publicity material and support in the form of radio adverts, computers and motorcycles, which will be acquired on credit.

How is the initiative structured?

G. Vélez: The strategy consists of those who acquire the right to distribute these products receiving a commission without them having to contribute any money or down payment. Later they may pay directly or on credit, but if they are willing to buy them and risk a little capital, they will be given an even lower price, thus increasing their profit margin.

At first, Energética will buy the equipment from the country's existing distributors. We, as the German Aid Agency will provide technical support and training for the distributors and technicians. The idea is to help families with these products so that they can scale up to more powerful systems in the future, thus strengthening the market for photovoltaic systems in rural areas.

How will the plan of action be implemented?

G. Vélez: The project will start this year in the Departments of Potosí and Cochabamba, using the experience already obtained by Energética in the area. The total value of the project is 400,000 dollars, in the form of a loan to the ONG from the Inter-American Development Bank (IDB).

What is the current energy situation?

G. Vélez: At present, the percentage electrification in the rural areas of these regions is 54,5%. Nationally however, according to the National Population and Housing Census 2013, in rural areas only 57,5% of homes have electricity; obviously the most remote families are those most affected, and for whom pico PV represents an excellent alternative. It is worth mentioning that these systems are very easy to install, use and maintain and have become very popular with the population.

What is the market outlook for this equipment?

A. Loayza: In Bolivia the organisation representing the principal companies distributing and promoting photovoltaic products is ABER (the Bolivian Renewable Energy Association) based in Cochabamba. It enables companies to share experiences and implement similar projects, selling their products in distant areas.



Easy handling lamps facilitate the ownership of technology in low-income populations.

EnDev-GIZ Bolivia

And what about support from the State?

A. Loayza: The State took part in the provision of 1,800 pico PV systems in 2013, in the Department of Pando in the Bolivian Amazon. This was the first test of the large-scale distribution of these products, which involved various institutions working together with the Vice-Ministerial Office of Electricity and Alternative Energy, an initiative that had positive results as far as the adoption of the technology was concerned. Based on that positive experience, a new project is under way in the region involving the distribution of 5,500 systems that should cover a significant part of the demand for lighting in this department.

As far as we, EnDev Bolivia, are concerned, it is important to strengthen the sustainability of these projects through an open market. This should be achieved by encouraging local distributors, who would be responsible for selling the equipment and providing technical assistance because this region (Pando) currently has no distribution network for these systems. So, we are going to support the establishment of companies there, which is also a new market with a great deal of potential.

In other words, stimulating the market.

G. Vélez: In general, we are working to create a market for photovoltaic systems. We have different strategies but they all point in the same direction. For example, we have signed contracts to support companies in expanding their territories; the difference with micro-franchises is that we will directly support the investments being made by these companies. This will take the form of financial and technical support and incentives for investment in vulnerable areas where these companies normally do not work.

“It is important to strengthen the sustainability of these projects through an open market.”

In order to take advantage of the experience of promoters of clean cookstoves in rural areas, the aim is to create incentives for a joint strategy for promoting improved cookstoves and pico photovoltaic systems.

What is the reality regarding access to energy for cooking in Bolivia?

M. Butrón: According to the 2012 National Population and Housing Census, rural areas of the country have more than 730,000 homes where food is cooked using biomass. The EnDev project has reached approximately 70,000 homes and together with other actors we could reach 100,000, but there is still a need and a great deal of potential for improved cookstoves.

How can improved cookstoves be linked to lighting?

M. Butrón: We are working on a more integrated energy strategy for rural communities. The idea is to assist families to light their homes with a pico PV system and also opt for an improved cookstove, either fixed or portable. Households will also be able to pay for these products in instalments.

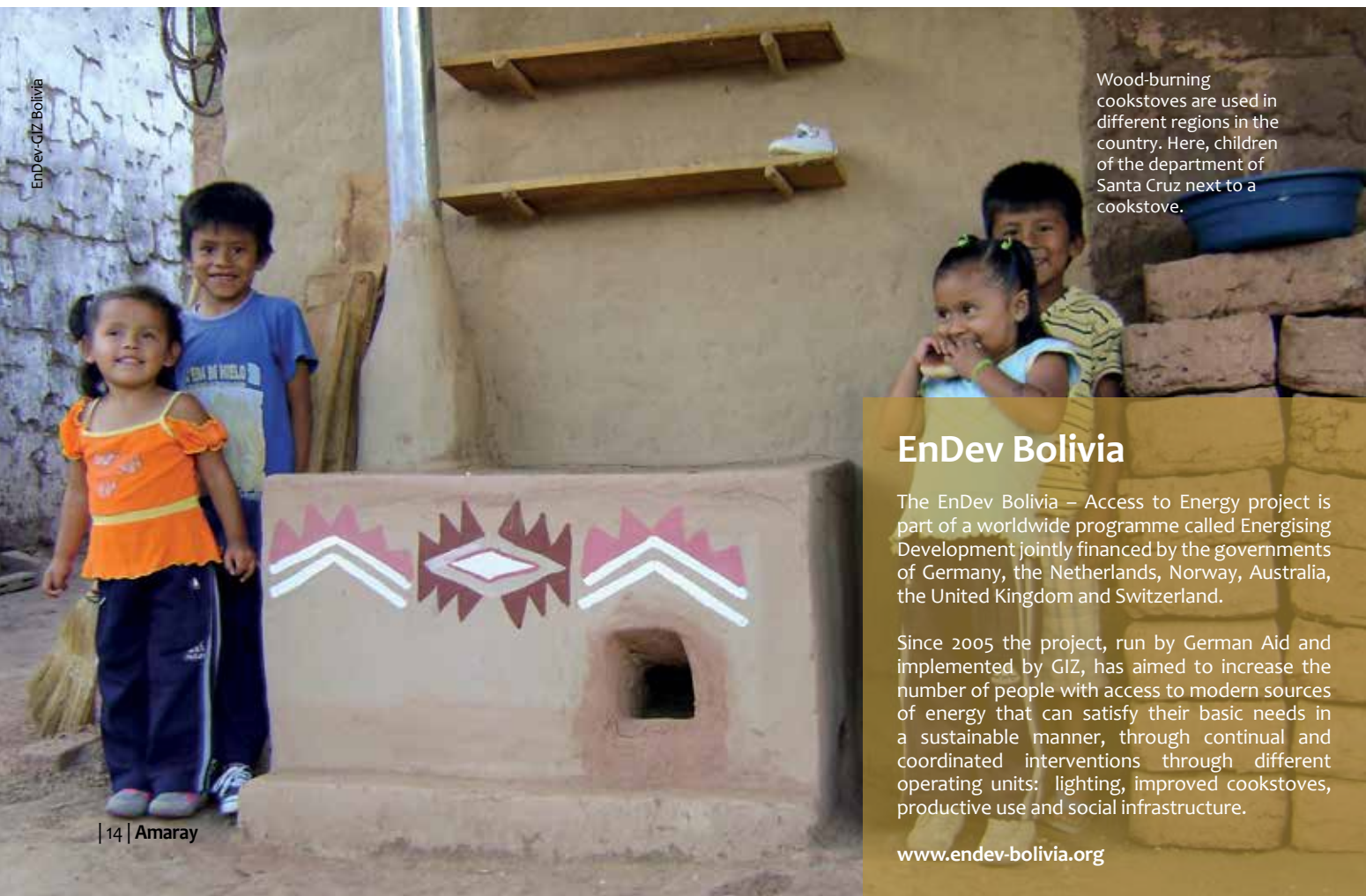
We want to take advantage of the experience gained by local promoters of improved cookstoves

in different parts of the country. In other words, provide incentives for this group of people to sell pico PV systems. Together, with lighting and cookstoves, we will help these people to develop a business model and offer both products to their communities.

This would therefore benefit the market for pico PV systems.

G. Vélez: The purpose of the integral energy promoters is to strengthen links between these local distributors, who initially sold cookstoves, and companies distributing photovoltaic systems with a view to converting them into official local distributors. To do so we want to take advantage of the commitment shown by these promoters with the improved cookstoves in recent years, as this is a difficult element to find. This will also strengthen the distribution channels of companies that normally operate where there is an easy market. So we want to enter more remote areas and show that they are also an interesting market.

“The purpose of the integral energy promoters is to strengthen links between companies distributing photovoltaic systems.”



Wood-burning cookstoves are used in different regions in the country. Here, children of the department of Santa Cruz next to a cookstove.

EnDev Bolivia

The EnDev Bolivia – Access to Energy project is part of a worldwide programme called Energising Development jointly financed by the governments of Germany, the Netherlands, Norway, Australia, the United Kingdom and Switzerland.

Since 2005 the project, run by German Aid and implemented by GIZ, has aimed to increase the number of people with access to modern sources of energy that can satisfy their basic needs in a sustainable manner, through continual and coordinated interventions through different operating units: lighting, improved cookstoves, productive use and social infrastructure.

www.endev-bolivia.org

*Cuida Tu Salud y
El Medio Ambiente*

¡Construye y usa tu

*Cocina
Mejorada!*



FARO CORPORATION S.A.C.
Felicidad en tus manos
CEL: #971185450 #959523683



De: *Multiservicios el Constructor*
Cel: #942459393



CEL: #998893964 / #206468/942904736

Managing knowledge

How important is the exchange of information?



Specialists in the improved cookstove gathered in Lima during the first half of 2015 in order to exchange experiences. This shows that knowledge management and the exchange of information between institutions is an essential factor in overcoming barriers and achieving the goal of better access to energy.

Participants listening to a presentation at one of the Specialist Encounters on improved cookstoves hold in the city of Lima.

SALIDA



Photographs: Archive EnDevGIZ

“We can achieve a more integrated response”

The view of Alicia Castro, institutional liaison advisor for the EnDev-GIZ Peru project.

The idea is that each of the counterparties and entities with which we work in the country should be familiar with the others' experiences and thus expand their own knowledge. In other words information may be exchanged so that the social response to a problem such as the difficulty of obtaining energy for cooking would have a greater impact on the population.

Given that we face problems of pollution, hazard and inefficient cooking, we can achieve a more integrated response in which various actors take part and share their skills, for example in energy, the environment, social development and health. Thus together we can overcome the obstacles. This assumes that we know where each one is and can find a suitable methodology for others to make use of this knowledge, in other words, to develop the tools for exchange and communication and, as in this case, for specialist encounters.

Throughout the year we have programmed technical conferences, both face-to-face and virtual; in the first half year we organised three specialist encounters between April and July. We have arranged for four contributors to discuss subjects that are becoming prominent in the country, as well as to address the critical points that still exist. We also seek to show this information to public bodies with the power to solve the problem.

In this context it is worth mentioning that none of the four organisers implement improved cookstoves. UNOPS offers monitoring services; German Aid's EnDev project "implemented by GIZ", provides technical assistance on strategies for

large-scale use and development of skills; FASERT-IICA makes funds available in order to stimulate the market; and Universidad Peruana Cayetano Heredia plays the major role in evaluation.

BUILDING THE ROAD

This is not the first time that EnDev-GIZ has associated with others to promote something specific, creating platforms from which to manage knowledge.

Our first experience was in 2009 when, together with a total of 18 entities, we facilitated an inter-institutional platform for the National Campaign for a Smoke-Free Peru. It was then that the first exchange of action took place and the "Cookometer" was created as a tool to measure progress with the implementation of cookstoves in the country and is useful for coordinating efforts. This intervention was completed at the beginning of 2012.

Then, in 2013, we returned to encourage the formation of a Thematic Group on energy for cooking, which includes 16 public and private institutions and is specifically designed for information management. Together we have created a website containing a more sophisticated tool in the form of a map of local interventions down to village level and which currently includes 300,000 households.

One important milestone was reached in June last year in Lima, when EnDev-GIZ joined forces with representatives of institutions in Bolivia, Guatemala and Mexico to hold the Latin American Clean Cookstove Seminar, supported by the

“The idea is that each of the counterparties and entities with which we work in the country should be familiar with the others' experiences.”



Alicia Castro, advisor for the EnDev Project, in a presentation at the first Specialist Encounter.

Thematic Group. Representatives of 11 countries in the region were present and there were 41 high-level presentations. Furthermore, the event was supported by the Global Alliance for Clean Cookstoves (GACC). As a result of this major event, the Latin American network now has a blog that regularly posts information from the countries of the region. We are therefore seeing the creation of platforms and encounters aimed at managing information.

SPECIALIST ENCOUNTERS 2015

In general, these specialist events concentrate on bringing together the actors in the country in which they are working on the subject of improved cookstoves and on reaching out to the institutions responsible for taking decisions that have an impact on the country's energy use.

The first meeting served to strengthen support for large-scale interventions, demonstrating to the

public sector the vast body of existing knowledge in the country on the effective implementation of strategies aimed at the large-scale introduction of clean cookstoves.

The second encounter reveals how the success of the improved cookstove programmes depends largely on monitoring, which should be carried out so as to reveal any changes that should be made by those implementing the scheme.

Finally, the third event evaluates progress in the market for improved cookstoves in the country, as we believe that encouraging mechanisms to ensure the development of a demand that will make the interventions sustainable is both a challenge and a necessity.

Furthermore, a special event was held in Lima in May, organised by Universidad Peruana Cayetano Heredia, supported by the GACC and attended by senior experts.

“EnDev-GIZ has associated with others to promote something specific, creating platforms from which to manage knowledge”.



The World Forum on Clean Indoor Air held in Lima in 2011 was a huge event that enabled the approach of different public and private institutions.



Videos and visual tools are efficient means for exposing energy access initiatives.



The exchange of ideas at international levels is a decisive factor. Here, the directors of the EnDev programme at Latin-American level with Carsten Hellpap (on the left), General Director of the project.

Ricardo Maraví,
Director of the
Programme Sembrando
(ITyF), expresses his
experiences together
with Stella Hartinger
(UPCH) and Fernando
Mogollón (IICA).



“It is vital to understand where exactly we are”

The opinion of Carlos Cervantes, national technical coordinator of FASERT.

I believe that these exchanges are very important. Firstly because I can learn at first hand of the requirements for technical aid, both on the demand side -that is, those who need public programmes in order to scale up the intervention- and on the supply side, as it helps to understand the degree of specialisation of the different developers and NGOs, where they are going and what they can really offer and, up to a point, what they can deliver.

It is very valuable to know where we are and these events, with their up to date information, enable us to perform a rapid diagnosis of the state of the sector. Furthermore, speaking now from the point of view of the fund (FASERT), they make us more visible and explain that we are a source of financing that is available. Indeed, we offer technical aid

and do not always require that a physical goal be achieved.

These meetings are very beneficial as they bring together everyone who is involved in the subject. This is clearly useful when one is new to the subject; nevertheless, they also allow the reestablishment of contacts and so facilitate more detailed discussions.

And given the need to incorporate services that guarantee the sustainability of the improved cookstoves in the long term, these events are opportunities for informing and raising the awareness of the public sector about the efforts and strategies implemented in the country regarding these technologies.

“These meetings are very beneficial as they bring together everyone who is involved in the subject.”



Specialists in improved cookstoves listen to one of the presentations on monitoring.

UNOPS stresses effective results-based monitoring

By the monitoring unit of the United Nations Office for Project Services (UNOPS) in Peru.



Results-based management is a new model for planning, monitoring and evaluation that starts from a critical analysis of the traditional system of state planning. Indeed, it is a model that is being used increasingly in many countries of Latin America.

Previously, the classic system assumed the existence of a chain of direct relations between inputs and the desired impact. Thus the determining factor for achieving the desired effects and impacts was planning, which formed a linear guide for implementation. Furthermore, the principal means of monitoring and evaluation was a systematic analysis of the process of implementing the actions, and the valuation criterion was how closely

the results approximated to the planned outcome. In this paradigm effort was always concentrated on adjusting implementation as a function of the plan, which was assumed to be an immovable point of reference.

Today the application of linear logic to analysing reality is disputed, as processes of social change are recognised to be multifaceted in nature and to a certain extent unpredictable, with priority being given to particular circumstances and dynamics of each context. In such a scenario, another method of understanding the relationship between inputs, products, results and the desired effects and impacts becomes necessary, accepting their complex and dynamic character.

Today the application of linear logic to analysing reality is disputed.



A monitoring advisor talking with beneficiaries of improved cookstoves.

From this new perspective, planning is no longer an immovable reference point for taking action, but an instrument for approximating to reality. Monitoring and evaluation constitute mechanisms that enable us to verify the validity of a hypothesis, provide feedback and, consequently, take strategic decisions. Putting this new approach into practice, planning no longer concentrates on inputs and activities, but on identifying strategic results that contribute to the desired effects. It therefore leaves open the possibility of defining and progressively modifying operational details in the light of continual analysis.

This is the framework in which a system of results-based monitoring is being developed by the United Nations Office for Project Services (UNOPS) in Peru; it is a model enabling scientific and timely measurement both of the process of creation and delivery of goods and services (products) and of the results, in terms of validation and use by the beneficiaries, and the eventual effects and impacts that may be detected. This system collects and analyses quantitative and qualitative information, generating speedy operating recommendations that can be integrated into subsequent states of the project, programme or policy. It is thus possible to provide prompt feedback during the implementation phase, enabling continual learning and improvement of the initiatives.

THE OPINIONS OF THE BENEFICIARIES

An essential aspect of this type of monitoring is that it be based on the opinions and perception of the beneficiaries, thus encouraging their inclusion in the project's management. This leading role they assume by providing their opinions as part of the implementation process helps to validate the intervention, complementing the particular characteristics of each zone visited. Furthermore, the system enables decisions to be based on scientifically validated information (with a confidence level of 95%), which guarantees greater transparency and objectivity.

It proved possible to apply this model of monitoring between April 2013 and December 2014 to the "Cocina Perú" programme run by the Ministry of Energy and Mining (MINEM), the principal hypothesis of which was that the replacement of traditional wood-burning cookstoves with LPG cookstoves and improved cookstoves would help to improve the beneficiaries' health by reducing the quantity of indoor smoke.

The monitoring tried to answer three questions from MINEM relating to the sustainability of the cookstoves, as measured by beneficiaries' approval and corrective action that could be applied during the implementation phase in order to increase the effectiveness of the programme. Two areas of attention were therefore structured: the first concerned production of the product; and the second, beneficiaries' perception of its use. In the first area the production and distribution of

the cookstoves were systematised, thus enabling analysis and understanding of how the initiatives were directed and defining budget spending. Within the second area a monitoring system was designed that, using a mixed methodology instrument (quantitative and qualitative) collected perceptions of the product and its use from a representative sample of beneficiaries.

Monthly reports were produced on progress with the policy and its effectiveness, which provided recommendations on implementation, in order to make improvements based on the findings of the monitoring. Thus, from the second month of implementation, the system contributed to modifications to the product and the method of delivery, increasing its relevance and level of acceptance and use. It should be pointed out that, for example, modifications were carried out to the user manual for LPG cookstoves based on understanding difficulties observed during the monitoring process. It was changed from a written pamphlet to one using drawings and finally to an illustrated poster to be placed next to the cookstove to be consulted and understood by different users.

One important finding was that, whilst the MINEM's hypothesis envisaged the replacement of traditional cookstoves by new ones, in the great majority of beneficiaries' homes (92% for LPG and 87% for the improved cookstoves) different types of cookstove were in use at the same time. Although the level of acceptance and use of the cookstoves provided was high (93% for LPG and 83% for the improved cookstoves), it was clear that the complementary nature of the different cooking technologies was related to the families' living standards, as they enabled them to use the stove most appropriate to their needs and circumstances (for example gas cookstoves when in a hurry and wood-burning cookstoves for slow cooking). This meant that it was possible to modify the policy hypothesis and expand the intervention to other areas, adapting it to the contexts in which it was being implemented.

Furthermore, it was found that there was no clear coincidence between the policy motivation and the pattern of use by the beneficiaries. Beneficiaries valued the LPG cookstoves more for their practicality, speed and ease of use than because they were the healthier option; while those who received improved cookstoves emphasised that they did not blacken pots and walls or leave their clothes smelling, as well as cooking more quickly and saving firewood.

The above illustrates the importance of the system of results-based monitoring implemented by UNOPS, which constitutes a management instrument that produced feedback and enables corrective action to be taken during the implementation of projects, programmes and policies, thus maximising their effectiveness and efficiency.

From this new perspective, planning is no longer an immovable reference point for taking action, but an instrument for approximating to reality.

A local resident shows how she uses her improved cookstove on a daily basis .

Direct opinions and perception of the beneficiaries is one of the bases for results-based monitoring.

UNOPS PERU



UNOPS PERU

UNOPS

The United Nations Office for Project Services (UNOPS) is currently managing more than one thousand projects for different partners throughout the world, guaranteeing quality, effectiveness and results that meet the highest standards.

UNOPS provides different types of technical aid in order to increase the effectiveness of public investments. It also offers follow-up, monitoring and evaluation services for projects and social programmes. One example of this is its work in Peru with the Ministry of Energy and Mining on the Cocina Peru programme, as well as the Qali Warma programme run by the Ministry of Development and Social Inclusion.

www.unops.org

“We are seeking a realistic but still flexible count”

Ileana Monti, planning and monitoring advisor of the EnDev-GIZ Peru programme, explains that the goal is to have a monitoring system that provides continual feedback, so that difficulties can be identified and corrections made to the processes. She remarks that an integrated platform has existed in Peru, Honduras, Bolivia and Nicaragua since 2013.

By Carlos Bertello, editor of the magazine Amaray.

The screenshot displays the EnDev monitoring portal. At the top, the logo 'EnDev' is followed by 'Portal del SISTEMA DE MONITOREO'. Navigation links include 'Inicio', 'SIMENDEV', 'Datos', and 'Contáctenos'. Below the header, a search bar and a 'Buscar' button are present. A section titled 'Realice consultas seleccionando los filtros a la derecha de la página. Puede descargar en forma libre y gratuita los datos de las tablas y los gráficos.' contains two tabs: 'MAPA' and 'GRÁFICOS'. The 'MAPA' tab is active, showing a map of South America with red markers indicating project locations. A filter sidebar on the right includes:

- Selección de variable:** Tecnologías, Beneficiarios.
- Selección de país:** -- Todos --, Bolivia, Honduras, Nicaragua, Mozambique, Perú.
- Selección de tecnología:** -- Todas --, Energía solar (checked), Energía hidráulica, Bioenergía, Energía eléctrica, Energía para cocinar (checked).
- Selección de tipo de beneficiario:** -- Todos --, (HH) - Hogares (checked), (IS) - Instituciones sociales (checked), (UP) - Usos productivos (checked).
- Selección de fecha de instalación:** -- Todas --, Último semestre, Último año, Rango de fechas.

 The URL 'www.monitoring.endev.info' is visible at the bottom left of the map area.

What does EnDev suggest for the monitoring process?

EnDev uses a results-based approach with strong emphasis on quantification. This refers to monitoring of the direct results generated in the short and medium terms, which EnDev defines as the number of people, social infrastructure institutions and productive uses given sustainable access to modern energy services. One key point is that the results reported should be accurate and verifiable using a specific methodology.

What does this methodology consist of?

It involves systematic monitoring that takes into account the traceability of the beneficiaries, in other words that it should be possible to identify: group eligibility conditions; and sustainability of access. These criteria are complemented by on-site verification of random data such that the information collected can be seen to be reliable. Finally, the figures we report as a country to EnDev are adjusted to take account of various factors, to make the data as real as possible.

In summary, we seek a realistic count that is still flexible, that is, learning from new cases and adjusting the monitoring when necessary.

When is monitoring carried out?

Monitoring is carried out at the same time as the interventions, in order to evaluate how things are going in the field and to learn from the experience. We collect these data to provide continual feedback so that we can issue warnings, identify difficulties or correct processes.

What happens afterwards with all this information?

It is very important for EnDev that donors and counterparties are informed about the results at least every six months. Thus, we share reports, information and presentations that enable informed and timely decisions to be taken.

One further tool that we have developed is the regional on-line monitoring system, by which four Latin American countries (Honduras, Nicaragua, Bolivia and Peru) link their data to make a single working platform. This is highly innovative and has been operating since 2013, enabling us to create clear rules and criteria, using the same language among all the countries involved.

The platform is available to the public in order to encourage transparency and participation by stakeholders. It also enables project results to be consulted in real time, and this information can be downloaded.

Do you intend to expand the platform?

Yes, the platform has the potential for integrating the different countries that are implementing the EnDev project. It is precisely because of its success

in Latin America that an EnDev pilot programme has been introduced in Mozambique. This enables us to study how other African countries could use the same tools and share monitoring rules and criteria. The final aim is to achieve open monitoring and collaboration in data management.

When managing this information, how is the beneficiaries' privacy treated?

We use these data very carefully, with proper security for personal information. Thus any user can gain access, for example, to the number of improved cookstoves installed in a given location over a period of time, but neither the names nor surnames of the beneficiaries are revealed.

It should also be mentioned that the world trend is towards monitoring that respects privacy, but makes data openly available, meaning that anyone anywhere in the world can see what is happening in each intervention. In other words, people can see the results directly.

Finally, is the methodology also available?

An explanation of the EnDev monitoring methodology is available in the programme's wiki and website. All the steps are there and the latter is available to the general public. Furthermore, we exchange knowledge of the specific tools continually with the counterparties and allies interested in learning about specific monitoring experiences.

“Monitoring is carried out at the same time as the interventions, in order to evaluate how things are going in the field”.

ADJUSTMENT FACTORS

Double energy: tries to answer the question of whether access is new or whether households already have some form of existing energy service.

Unexpected gain: places emphasis on analysing whether access provided by EnDev was really necessary or whether the families could have obtained access independently.

Replacement: applies to technologies with a limited life, such as improved cookstoves and pico photovoltaic systems. In such cases, the equipment will be withdrawn from service according to the service life of each type of technology.

Sustainability: represents the fact that people will not continue to use these modern services for different reasons.

Contributions by the other donor: when applicable, this also generates an adjustment to the number of real beneficiaries of the programme.

A strategy for large-scale adoption of improved cookstoves

This approach starts from an understanding of the energy used for cooking in the area of the intervention, as well as a model for developing effective action. Both elements are used to design effective strategies and to define the results it is expected to obtain.

By **Ana Isabel Moreno**, director of the EnDev-GIZ Peru project and **Carlos Cabezudo Moreno**, national advisor on energy for cooking for the same project.



Polishing tiles is one of the main activities for the production of cookstoves.

Photographs and graphics: Archive EnDev-GIZ

Large-scale use of improved cookstoves has to start from an approach that enables us to interpret the specific conditions of the area where the intervention is to take place. In this context the Energy for Cooking part of the Energising Development project (EnDev Peru) run by German Aid, implemented by GIZ, has developed a strategy for the large-scale use of improved cookstoves, taking the following into account.

THE COOKING SYSTEM IS MORE THAN JUST A CLEAN COOKSTOVE

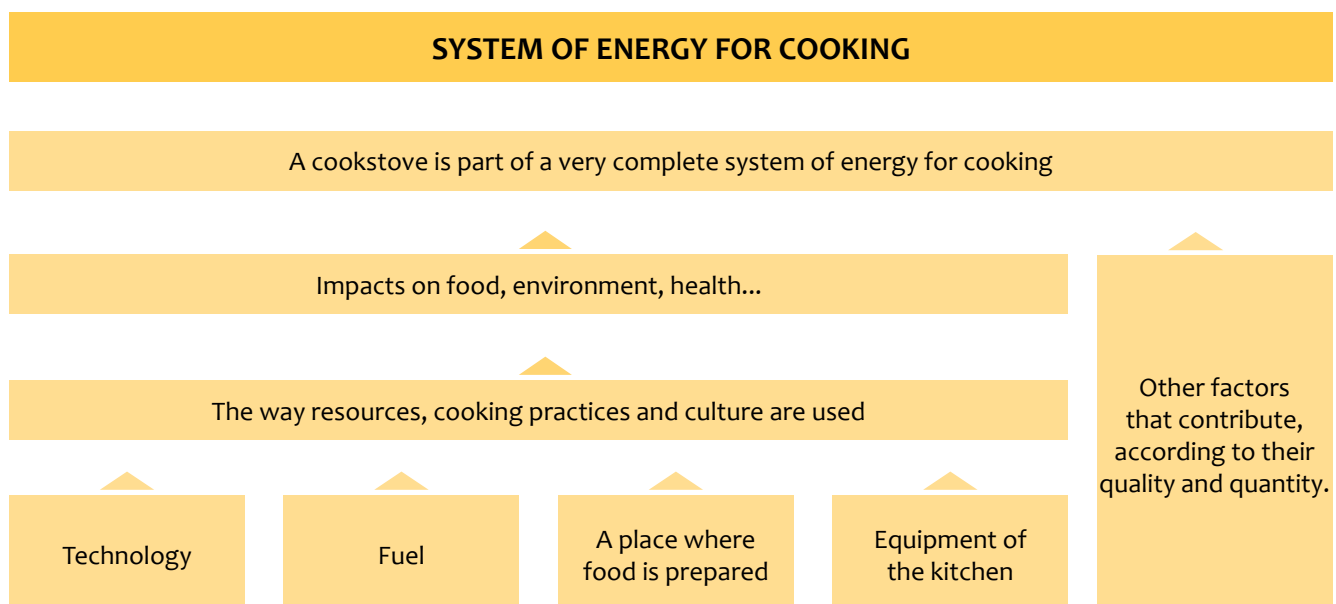
Food preparation takes place within a complex system. In it, factors such as the type of technology and fuel used by families, and how these are acquired, are important. For example, we need to know whether food is still cooked on open fires, whether the improved cookstove meets minimum standards and whether the fuel is gathered or bought. Other factors are also important, such as food preparation equipment: type and capacity of pots used, the conditions in which food is prepared - whether the area is clean and orderly. Furthermore it is important take into account the population matrix in relation to their cooking practices (see illustration).

THE MODEL

Given these questions, we need a model for developing effective action to create sustainable access to energy for cooking. For that reason the EnDev-GIZ project has proposed a model for the large-scale adoption of improved cookstoves, which consists of a series of interrelated elements (or sub-systems) that aim to provide effective answers. The structure consists of:

1. **The energy supply system.** The actors are the public and private companies that supply the improved cookstoves (economic goods), the energy supplies and sources of energy through a value chain that satisfies people's need to cook food at home. Strictly speaking, the supply.
2. **The domestic system.** This refers to the domestic cooking system used by families, which depends on social, cultural, economic and environmental factors, gender, knowledge of technology and access to fuel. Strictly speaking, the demand.
3. **The public institutional environment.** The aim is to reduce energy poverty and meet the proposed indicators for domestic food preparation. It therefore promotes a legal framework, technical regulations, policies, financing (subsidies) and implementation of programmes for the large-scale use of technologies. The actors are national and regional public institutions. Strictly speaking, the regulator (the State).
4. **The private sector.** Its aim is the same as that of public institutions: to reduce energy poverty. To do so it strengthens energy supply systems, domestic systems and public institutions by providing technical assistance, providing financing mechanisms, developing skills and investing, etc. The actors are international aid agencies, NGOs, civil society, private consulting companies, business incubators and microfinance institutions, among others. It is different from the public and institutional sector because it does not regulate or promulgate legislation.

A model for developing effective action to create sustainable access to energy for cooking is necessary.



5. **Monitoring.** Monitoring enables a record to be kept of beneficiaries and the number of cookstoves installed, in order to check that the proposed objectives are being met. It also facilitates measurement of the impacts caused by the use of improved cookstoves and provides evidence of the effectiveness of the interventions.

The systemic method requires us to understand firstly how the energy system for cooking behaves (inputs). Then the model enables us to determine the action that must be taken to ensure results (outputs) that imply improvements to the system of energy for cooking (processes). Thus the inputs and processes lead to the desired outputs of the intervention (see table).

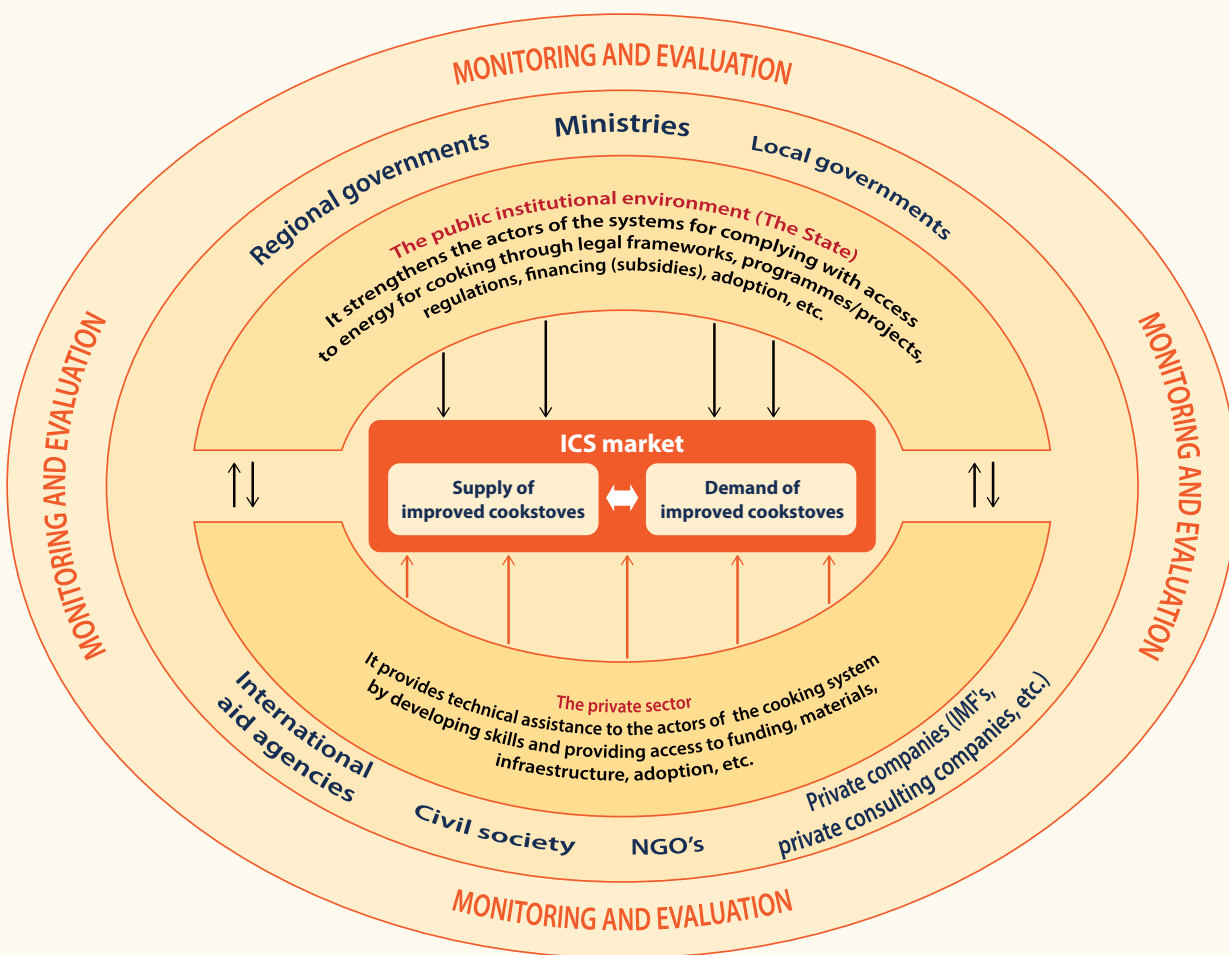
In summary, adequate large-scale use of improved cookstoves requires firstly, an understanding of how the system of energy for cooking behaves in the area of our intervention; secondly, a holistic model for developing effective interventions. Both elements are used in the matrix of the systemic method that we use to design strategies and define results, with a view to improving the system of energy for cooking.

An adequate large-scale use of improved cookstoves requires firstly an understanding of how the system of energy for cooking behaves.

SYSTEMIC METHOD FOR DEFINING STRATEGIES

Keeping this system of energy for cooking in our minds, as well as a model for effective interventions that enables us to see beyond the target group or the technology such that it will prove possible to promote the large-scale use of improved and sustainable cookstoves.

MODEL FOR EFFECTIVE INTERVENTIONS





EXAMPLE OF THE SYSTEMIC METHOD MATRIX FOR DEFINING STRATEGIES

A community gets together for the distribution of metal chimneys for improved cookstoves.

Inputs	Processes	Outputs results
System of energy for cooking	Model for the development of effective interventions	Certified cookstoves that have an impact on family living standards.
Improved cookstoves that do not meet minimum standards	Regulatory framework for the production of certified improved cookstoves	Food prepared in pots that meet the permitted standards
Domestic pots have a high lead content	ISO standards for pot manufacture	Users who use and maintain their cookstoves properly
Users who do not use and maintain their cookstoves properly	Processes for changing behaviour in the use and maintenance of the cookstove	

ENDEV PERU

The Energising Development (EnDev) project has been implemented in Peru since 2007 by GIZ on behalf of German Aid. Its aim is to facilitate sustainable access to basic energy services, especially by people in rural areas. Its lines of action are: energy for cooking, energy for lighting, energy for productive purposes and energy-based services such as microfinance.

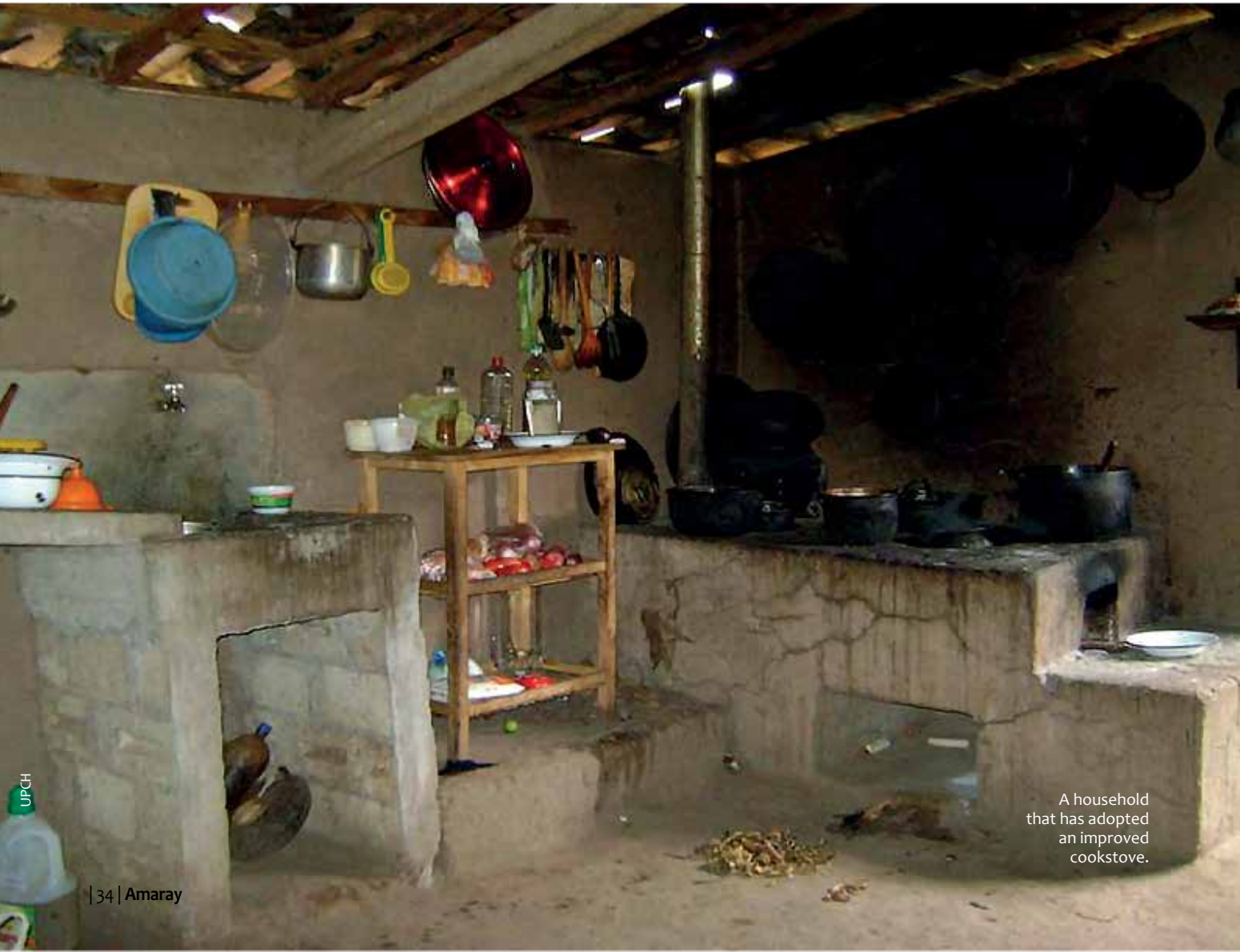
It forms part of the Energising Development initiative being implemented in 23 countries and financed by the Federal Republic of Germany, the Netherlands, Norway, Australia, the United Kingdom and Switzerland, the aim of which is to promote sustainable access to energy services for 14 million people by 2015.

www.endevperu.org

A study for the adoption of improved cookstoves

Faced with the global problem of indoor pollution and the damage this causes to health, researchers from many institutions are involved in a joint study to determine the factors influencing the acceptability and sustainable adoption of improved cookstoves.

By **researchers** at Universidad Peruana Cayetano Heredia; the Swiss Tropical and Public Health Institute; Tulane University; and Universidad Rovira i Virgili.



A household that has adopted an improved cookstove.

Indoor pollution (IP) generated by the incomplete combustion of domestic biomass for cooking food, lighting and heating, affects around 3,000 million homes throughout the world, and is the major cause of respiratory diseases and poor health, particularly in women and children. Given this reality, improved ventilation cookstoves (ICS) and cleaner fuel are promising interventions that can reduce the negative impact on health caused by IP.

However, acceptance of this technology in the home, adoption and sustained use is a complex process and depends on an interaction between factors present at different levels in society. Thus these factors are not limited to knowledge of the technology, but also include attitudes, practices and influences within the community and civil society, market opportunities, repair and supply chains, and the respective regulatory frameworks. This is a systemic perspective that is frequently ignored when implementing ICS programmes and planning policies.

In this context, in an investigation carried out by us in Cajamarca region in Peru, the team discovered how the adoption of ICS is linked principally to their tangible benefits such as shorter cooking times, lower fuel use, cleaner homes and improved stove designs adapted to local cooking practices, and not necessarily to their perceived health benefits.

Thus, in an effort to understand adoption and whether it was achieved in Andean communities where clean technologies for cooking had been introduced, our team carried out a study financed by the Global Alliance for Clean Cookstoves (GACC), the aim of which was to determine the attributes and factors affecting the acceptability and adoption of these technologies among rural communities in the Peruvian Andes. A second aim was to review current definitions for the adoption of IS and thus provide a new and measurable operating definition that would facilitate the monitoring and evaluation of programmes in Peru.

The study was carried out in three different ecological regions of the country: Cajamarca, La Libertad and Cusco, located at different altitudes and subject to different ICS programmes. 400 homes were chosen in each region, that received an ICS over the last seven years, whether from a known institution, an NGO or a government programme.

A DEFINITION OF ADOPTION

There is no universal agreement on how to define adoption, or of what this process consists. The consensus in specialist literature is that it is a process that varies from the acquisition and acceptance of an ICS or clean cooking technologies (CCT) to use and sustained use over time.

In order to identify the factors determining adoption (hereinafter referred to as facilitators and barriers) in the homes involved in the different IS programmes, a functional definition of adoption was established based on survey data from these homes. We thus defined adoption based on the use of an ICS, frequency of use, the condition of the kitchen (measurable conditions the stove and combustion chamber) and the willingness of the users to invest in repairs or replacement of an improved stove or its components. We further defined sustained adoption as when the adoption criteria for an IS have been met and money has been spent on repairing the equipment during its useful life or it has been replaced.

Having settled on these succinct definitions, we were able to characterise and quantify those who adopted ICS/CCT in the communities covered by the study and observed that 59.2% of households who used them could be considered as adopters. Cajamarca was the region with the lowest level of adoption (39.2%) followed by La Libertad (64%) and Cusco (74%).

In this context there are many factors that may contribute to acceptance and adoption of clean cooking technologies. Our study used a multiple regression analysis to show that certain facilitating factors are related to the geographical area where the interventions took place; the support provided to the programmes by authorities and community leaders; the spending power of families (measured as being in the highest quintile for spending power); and the age of the mother. Among the barriers, we found that the design and durability of the ICS (combustion chambers and chimneys) are the principal barriers to adoption.

SYSTEM FACTORS

The determining factors for adoption of clean cooking technologies are complex and changing. For that reason we proposed the hypothesis that the adoption process is also influenced by factors relating to the local system, such as local or regional politics, local government, services and resources available in the communities and the ability of the household to keep the stove clean.

An analysis of the data collected from all of these elements of society, using a socio-ecological model, enabled us to identify the following facilitators and barriers for adoption in the departments of Cajamarca, La Libertad and Cusco, at each system level:

At individual level: The facilitators include the ability to choose an improved cookstove, personal cooking preferences, time savings and safety, aesthetic improvements within the home, durability and the design of the ICS. Two further important points at this level are, on the one hand

The team discovered how the adoption of ICS is linked principally to their tangible benefits.

the brand and supplier's reputation, as those enjoying respect within the community have more adopters than other organisations, and on the other it is essential that these agents take into account the beneficiaries' expectations regarding repairs and availability of components after they have been installed.

At interpersonal level: we find that exchanges within families were as much facilitators as critical barriers. Recommendation by family members and neighbours was a positive aspect; while rumours and comments concerning both the equipment and the suppliers were negative. For that reason, talks and exchanges of information on the reputation of the programme and its participants are determining factors at an interpersonal level.

At community level: communities expect repair and maintenance services for the ICS to be available. Thus the beneficiaries want continued support for their adoption of clean energy through an active commitment from community leaders, the programme promoters and their local personnel.

At institutional level: the principal barriers to the adoption of CCT are linked to a lack of understanding of local cooking needs as well as inadequate design and operation of the equipment itself. This therefore creates a need for institutions and organisations to adjust the implementation of their products and, if necessary, to make technical adaptations to them. At the same time, donating CCT equipment free of charge creates an expectation that the repair and maintenance service will also be free. Furthermore, when the programme applies specific criteria for inclusion and exclusion, the beneficiaries feel annoyance, a sense of injustice and, occasionally, a lack of confidence.

Finally, we believe that a systemic approach that ensures interaction at different levels between individuals, their immediate environment (the community) and institutions and policies, is essential to the acceptance of CCT in such communities, increased adoption, sustained adoption and, therefore, the sustainability of these programmes.

We proposed the hypothesis that the adoption process is also influenced by factors relating to the local system.



UPCH

All family members can be part of the process of adoption of improved cookstoves.



Considering cooking practices is essential for the adoption of the technology among new users.

THE AUTHORS

Daniel Mäusezahl, senior researcher and head of the Domestic Health Systems Unit of Swiss TPH.

Stella Hartinger, professor at the Faculty of Public Health and Administration of the UPCH and director of the Integral development, Environment and Health Unit at the same university.

Valerie Paz Soldán, associate professor at Tulane University in the USA, and associate researcher at the UPCH's Integral development, Environment and Health Unit.

Amy Powel, assistant researcher at Tulane University in the USA, and associate researcher at the UPCH's Integral development, Environment and Health Unit.

Joan Muela Ribera, principal researcher at the Medical Anthropology Research Centre (MARC) of Universidad Rovira i Virgili, in Tarragona, Spain.

UPCH and Swiss TPH

The Universidad Peruana Cayetano Heredia (UPCH) and the Swiss Tropical and Public Health Institute (Swiss TPH) have carried out joint research since 2007. This health research platform provides opportunities for development investigation to students, researchers and specialists in public health, both local and international.

This alliance maintains the “San Marcos Health Research Station” in the province of San Marcos, Cajamarca, Peru. The activities include research into participative action, anthropological and environmental research (air quality monitoring, tests of the stove and of water and drainage quality), epidemiological work and examination of health systems.

www.upch.edu.pe

www.swisstph.ch

Adding the influence of FASERT

Financing for eight energy-access projects with a budget of 1.2 million dollars, which will be used to promote the use of improved cookstoves and biodigesters, as well as to facilitate the efficient use of energy in 50 artisanal brick kilns.

By **Carlos Cervantes**, national technical coordinator of FASERT.

The Fund for Sustainable Access to Thermal Energy (FASERT) is an initiative established at the end of 2013 by the Inter-American Institute for Agricultural Cooperation (IICA) and the German Aid agency, implemented by GIZ, to encourage access to renewable thermal energy solutions using market mechanisms. It is the first fund to finance projects at national level; rather than provide a subsidy for the technology as such, it seeks to develop a market by sponsoring experiences that strengthen supply, stimulate demand and promote financial products appropriate to the income levels of rural families.

To date, FASERT has been sponsoring the development of eight energy access projects, for which it has a budget of 1.2 million dollars. These projects will:

- Enable 11,400 rural families to obtain access to energy for cooking using improved cookstoves and biodigesters in seven regions of Peru.
- Encourage access to and efficient use of energy by 50 artisanal brick makers in five regions.

- Strengthen 19 new businesses involved in the production, distribution and installation of improved cookstoves.
- Prevent the emission of 28.3 kilotons of CO₂ per year.

Furthermore, these projects will demonstrate how a systemic market approach can achieve effective changes in the behaviour of actors in the value chain of renewable energy technologies (suppliers, distributors, users and financial institutions). The objective is to overcome existing barriers and demonstrate that it is possible to create sustainable markets in energy services.

One example of the chosen projects is an initiative being implemented by Peru's development bank (COFIDE) in the departments of Lambayeque and Ayacucho through Savings and Credit Unions (UNICAS), which will provide micro-financing under preferential conditions to their associates in order to acquire improved cookstoves. Another example is the experience promoted by the NGO Practical Action in the department of Cajamarca, which offers a family microfinance scheme to a coffee growers' cooperative to enable them to acquire improved cookstoves.

These projects will demonstrate how a systemic market approach can achieve effective changes.

FASERT

The Fund for Sustainable Access to Renewable Thermal Energy (FASERT) was set up in 2013 through an agreement between Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), an agency of the German Government and Instituto Interamericano de Cooperación para la Agricultura (IICA), as a mechanism to stimulate the value chain in the market for renewable thermal energy technologies in Peru.

The fund aims to improve the living standards of people living in rural areas and the urban periphery in Peru, motivating economic growth through the development of modern renewable thermal energy solutions.

www.fasert.org



Companies and organizations, selected by the fund, will encourage the production of improved cookstoves.

ComVoMujer

For a life free from violence

Combating violence against women is fundamental to development throughout the world, and particularly to strengthening the social role of women. Furthermore, -and as shown in the following articles- adequate access to energy is a decisive tool for empowerment, particularly in rural areas, thus emphasising women's right to a dignified and healthy life without violence. In this context, this photographic portfolio shows demonstrates some of the initiatives that have been promoted by the regional "Combating Violence against Women in Latin America" programme (ComVoMujer) from German Aid, implemented by GIZ.

"Women's Letters" is an initiative that calls upon citizens of all ages and social strata to write letters describing experiences, reflections and messages relating to violence against women. The campaign started in Ecuador in 2011, continued in Peru in 2012, in Bolivia in 2014 and is currently being implemented in Guatemala. In the first three countries men and women of all ages and social conditions shared their experiences of this problem. Through workshops, round tables, bulletins and the Internet, more than 43,000 letters have been collected throughout the region.

Similarly in Paraguay, as part of the celebration of International Women's Day, social organisations and movements took part in a march on the 8th of March 2013 "for popular sovereignty and our bodies" and to say "stop violence against women". One of the principal organising institutions was the National Coordinator of Organisations of Working and Indigenous Women (CONAMURI).

Another initiative was also a joint effort with electricity distributor Electro Oriente in the Peruvian region of San Martín, through a campaign entitled "light up your life and black out violence against women", which sought to promote this message through electricity bills and pamphlets distributed throughout the region.

German Aid, implemented by GIZ, executes a regional programme called "Combating Violence against Women in Latin America" (ComVoMujer). Its purpose is to improve cooperation between state institutions, non-state institutions and the private sector in implementing measures to combat violence against women. ComVoMujer works in four South American countries: Bolivia, Ecuador, Paraguay and Peru. Its head office is in Peru and it has national coordinators in all four countries.

www.mujereslibresdeviolencia.usmp.edu.pe

www.bloqueandolavcm.org



Launch of the "Women's Letters from Peru" campaign in Lima's Historic Centre.





The “Women’s Letters from Peru” campaign has collected more than 14,000 letters.

Photographs: Com Yo Mujer



The “Women’s Letters from Bolivia” campaign has collected more than 17,000 testimonials.

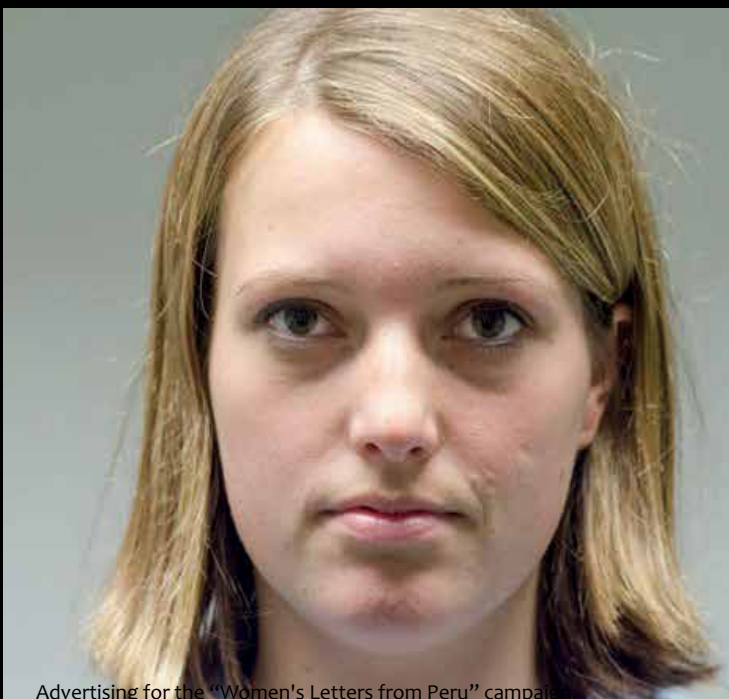
ESTOY EN
CONTRA
DE LA
VIOLENCIA
HACIA LAS
MUJERES



March "for the sovereignty of our bodies", Paraguay.



March "for the sovereignty of our bodies", Paraguay.



**1 de cada 3
mujeres** en el mundo,
ha sido golpeada, forzada
a tener relaciones sexuales o
ha sufrido otro tipo de abuso
por algún hombre presente
en su vida.

(Fuente: Naciones Unidas)

Advertising for the "Women's Letters from Peru" campaign



¡Que no se apague ni una vida más!



**¡Ilumina
tu vida!
Apaga
la mala
energía
de la
violencia
contra
las
mujeres**

Empowered women and improved cookstoves

The gender approach to projects aimed at encouraging the use of clean cookstoves has also given women a more prominent role in the value chain of these products, changing from being beneficiaries to suppliers.

By *Alicia Castro*, institutional liaison advisor for the EnDev-GIZ Peru project.



A local resident of the village of Chiguata, in Arequipa, shows how locals decorate their cookstoves.

Most of the beneficiaries of projects involving energy for cooking are women, however they have a lower level of participation in the different phases of the cookstoves' value chain. For that reason, empowering women to be more active in the field of clean cookstoves means strengthening their skills and recognising their needs and interests in the productive sector, and not only in the domestic environment.

With this in mind, the use of a gender-based approach in cookstoves projects helps to increase their impacts. As users who are aware of and familiar with the use and maintenance of the cookstoves, women guarantee the social and environmental effects of the project, as well as savings in time and effort. Nevertheless, they are excluded from opportunities for developing their talent for new employment positions.

We have learned, therefore, that to guarantee active participation by women we have to improve the processes of involving them and the methodologies used from a gender point of view in order to change their role from that of victims of domestic pollution to that of protagonists who are part of the solution. This change means that women should become involved in the process of adoption and diffusion of new technologies in their communities, encouraging care for the environment and forming part of the value chain of clean cookstoves.

From this standpoint we can see that the process of empowerment requires external support as well as the development of skills and exposure to market opportunities, but also the consolidation of their intrinsic resources such as self-confidence in their own decision-making ability so that the final result is that they are able to take decisions that will make a positive change to their lives.

FROM BENEFICIARIES TO THE DRIVERS OF CHANGE

In the experience of German Aid's Energy Development (EnDev) project, implemented by GIZ and its counterparts, both the level and quality of participation by women has been increasing. The involvement of women can be seen, for example, when they change from being passive participants or beneficiaries to promoters of a healthy environment using new practices. They also assume the role of promoters in other cases, raising awareness and giving training in the use of the new technology, and it is the women who drive changes in practice and the healthy environment and cookstove committees in their communities.

One traditional role for men is that of installers, but today women are becoming involved in this field too. They have also assumed the role of business owners with business plans based on the improved cookstove. Thus, although there are still many more men than women in this field, women are gradually increasing their role as installers and suppliers of parts and after-sales services.

The use of a gender-based approach in cookstoves projects helps to increase their impacts.

Empowerment workshops allow women to acquire practical knowledge for their companies.



It is also worth mentioning that developing integrated strategies for the adoption of the cookstoves, women are excellent promoters and effective at establishing strategic alliances in their communities, whether with the school and health centre or with community leaders and authorities.

Working in this gender-based way, an important opportunity arose in 2014 with the Global Alliance for Clean Cookstoves (GACC), which sought aid to validate a thematic guide to empowerment, leadership and business.

A workshop was organised in which 11 small and micro-enterprises from five regions of Peru took part. The workshop strengthened their skills on the premise that business success is based on personal development related directly to four components: achievement, personal power, planning and the building of personal relationships. That year also saw additional support from FASERT- IICA, new links with GACC for the training of facilitators and commercial empowerment of new businesswomen, accompanied by the leaders trained during the previous year.

One traditional role for men is that of installers, but today women are becoming involved in this field too.

The manuals for installation and operation of improved cookstoves are a key for strengthening knowledge related to this technology.



“Women are taking over new roles”

Alicia Castro, advisor to the EnDev-GIZ Peru project emphasises that empowering women improves the impact of interventions with improved cookstoves.

We can see how women are gradually changing from being the victims of contamination in their homes to protagonists in solving the problem. This happens when they have the opportunity to take part, as well as the information and tools and, above all, see that their opinions on the new technology available from different initiatives are taken into account.

Nevertheless, progress is still relatively slow. For example, the value chain for improved cookstoves does not contain women cookstove designers. When reflecting on this matter, then, we find that women's participation in the production process is still minimal. However, even if they are absent from the design process they still have an influence as they make suggestions to the designers to ensure that the cookstoves are accepted.

Furthermore, women are good disseminating technology as they are regularly in contact with other users. They also quickly take a positive attitude to social and environmental protection.

Our experience tells us that women are now assuming new roles and are no longer merely passive beneficiaries. For example, their role as users is very clear, meaning that they exert their

rights concerning the quality of the product. They know the technology and seek compliance with technical criteria, making them good at managing household energy. But not all of them make use of this type of information, which means that the channels for dissemination must be improved.

Another role is that of social promoters, which has also produced many positive experiences as they are aware that to encourage changes in practices a clean environment in the home is essential. They therefore become the monitors of this change.

The installers provide similar experiences. We have as an example the Nina project run by the Ministry of Energy and Mining, which trained 700 installers, of whom 40 percent were women, thanks to the requirement to incorporate a gender element into the project.

Finally, although distributors and businesswomen are still few in number, the process has now started and it is this that we seek to strengthen as it means a new role for these women. Thus, our interest is in providing the opportunity to encourage them to take part in each link of the value chain for improved cookstoves, which will not only be to their own benefit but will also ensure that the interventions have a greater impact.

“Their role as users is very clear, meaning that they exert their rights concerning the quality of the product.”

PROGRESS OF THE INITIATIVE

- 304 women (40% of the total) trained as supervisors and installers for a total of 61,976 cookstoves installed by the Ministry of Energy and Mining.
- 20 women from five regions trained as promoters for a pilot project in a total of 550 households and 11 schools.
- Strengthened personal and commercial development for 11 women with clean cookstove businesses. Two of these are outstanding suppliers of cookstoves and parts in the Cajamarca and San Martin regions.
- Of the three businesses chosen by Aceleradora de Impacto Agora and the GACC, one is run by a woman who receives technical and financial help to expand her business.

A story of success

Tomasa Yopía, a mother aged 50 who heads a workshop where improved cookstoves are made in the Cajamarca village of Puylucana, is an example of how the production process can be an opportunity for entrepreneurial women.

By Carlos Bertello, editor of the magazine Amaray.

Tomasa Yopía lives with her family in the village of Puylucana, 5 Km from the city of Cajamarca. She was born there and lives with her three children and husband Julio Yopla, who has run a light steel fabrication workshop since 1985.

Don Julio had never made improved cookstoves (ICS) until in 2009 his wife mentioned a quotation she had made for the Municipality of Cajamarca. “When the requirement appeared and I submitted my quotation, I was proud to tell my husband that we had won the contract. So I asked him to make

the 16 cookstoves, but he was working on a big job and said he couldn't do it at that time”, says Tomasa.

She didn't lose heart, however. She contacted a nearby workshop and gave them the work. Although she did not know it yet, that was the beginning of a life change for her and all of her family. Two weeks later, the Municipality wanted a new quotation, this time for 2,000 cookstoves. This time of course, her husband couldn't say no to the opportunity.



Archive EnDev-GIZ

Tomasa Yopía - in the centre - with workers from her workshop in Puylucana.

Tomasa Yopía manufactures a metallic cover for a chimneys.



The company won the order but did not have the machinery necessary to build that many units in the required 30 days. So, to meet the delivery date Tomasa got her children to join her in the work, and her husband had to travel to Lima to buy materials. “Every day we try to make a little more progress and we have even had to contract other people. We managed to deliver the 2,000 cookstoves with one day to go to the end of the delivery period”.

Shortly afterwards, Bambamarca needed another 1,000 cookstoves and once more the company won the tender. Right up to the present day, Tomasa continues to approach village and district authorities in the region who are interested in the ICS. “All day we check out municipality Internet sites, waiting for tenders for the purchase of cookstoves”, she says.

THE INVESTMENT CONTINUES

Tomasa says that the company reinvests the money earned from its sales purchasing machinery for manufacturing the metal components. So much so that she assures us that “if we are asked for cookstoves, today we can make up to 600 a day”.

Furthermore, if they are asked to install a complete ICS the company also makes the bases and offers an installation service in accordance with the users' needs and whether they want cookstoves with two or three rings. “We provide the grills, bases, bars, cowl -everything”, she adds.

In this context, with Cajamarca having one of the lowest indices of rural electrification in Peru, it also has a high percentage of families who cook using traditional fires. There is a large demand, then, and Tomasa says she has sold more than one million components for ICS since 2009.

Her company, registered under her own name, has ten employees, not including her family. “I have three children, two of whom are at university while the youngest is still at school. They contribute a lot to the business and when my husband and I aren't there they take over”, she says.

Similarly, she says that they have given the opportunity to women who worked as domestic employees to work in the business, in which they can earn up to 45 soles a day. “Both men and

women work together and the atmosphere is good”, she comments.

Tomasa doesn't intend to give up this business and is grateful to the NGOs and institutions that have always had confidence in her company. “I never imagined that working with improved cookstoves would make me and my family so much better off. Before, the fabrication work was small-scale and my husband had only one assistant. We have been able to make progress and it has been a benefit in every sense”, she says.

Without a doubt, the story of Tomasa and her family is an inspiring example to other women entrepreneurs, so it is also important to mention that their efforts have been supported from the beginning by the Energising Development (EnDev) project run by German Aid and implemented by GIZ. In September 2014, Tomasa was invited to a commercial empowerment workshop for women in Tarapoto. “I always learn something new at the workshops that I can use in my business and share with the others”, she says.

Finally, she comments that two years ago people had no real interest in the cookstoves, but today most of them have one or want one. Furthermore, when they become deteriorated, they go to her to buy replacement parts. “It's a saving. Before, I spent 100 soles a month on firewood and now I spend 50 or less. Now all my neighbours have improved cookstoves. We like them more and more each day, she says happily.

“I never imagined that working with improved cookstoves would make me so much better off.”

“It was a huge leap forward and now we're living in a different way”

Lucero Julián Castrejón, mother and resident of Soritor, in San Martín, tells us how she started as an entrepreneur in the sale and installation of improved stoves. She incorporated her company Enerselva in 2014.

By Carlos Bertello, editor of the magazine Amaray.



Archive EnDevGIZ

Lucero Julián shows her products in the local fair in the region of San Martín.

In which year did you start working with the improved cookstoves?

In 2009 I was invited to a training session by the company GyS, who were working on the construction of improved cookstoves (ICS). That was the first time I had seen them and the first day I couldn't make anything. However the second day I said I wanted to carry on and they corrected my mistakes. Fortunately, the many who was teaching me had a lot of patience and although I had to dismantle the cookstove twice I was learning. So on the third day I built one on my own and then quickly got better until I was making them for a living.

What did you do before that?

I worked on a farm at that time. They paid me 10 soles for a day's work, while the IS work paid 15 soles. At that time it seemed like a good income.

What happened then?

During 2009 something happened with GyS and it closed. And when German Aid (GIZ) found out that there was a woman who also built cookstoves, they invited me to take part in a workshop they were organising. In total there were five of us, four men and a woman (that was me). So I built my cookstove and then GIZ invited me to work as a consultant, where I started to really see the benefits of the cookstoves. I knew that in San Martín region women cooked three meals a day, so I saw an immense need for change.

Is that when you started to grow as a business?

Later, in 2012, GIZ provided training for entrepreneurs and they invited me to start my own business. That's how I gained the knowledge to consolidate the business and I persuaded my husband to get involved, because he was still working in the farm. So he came with me to see what the work involved and he liked it, so in 2013 he also started to build cookstoves. We also took part together in two workshops in Lima, where we learned how to run a company, so in 2014 we incorporated the company Enerselva.

In September GIZ invited you to take part in a commercial empowerment workshop for women, what were the benefits?

I couldn't wait to go. Every time they invite me to a workshop I go. I went last year and it was a great success. The thing that applied to my company was order, because we had no clear idea of how to keep the accounts. In addition, they taught us how to manage the business better and I shared this knowledge later with my husband.

And what about exchanging information with the other participants?

We learned a lot. For example, from Mrs Tomasa Yopía, who has a workshop in Cajamarca. We could see she's a very active woman, who visits the local councils to sell her products. We didn't have this way of working yet, as we sold directly to individuals at their homes, calling on each family, door to door. Ever since then I've been in contact with her by telephone or Facebook.

How does your business work?

We buy all the products on the coast. They send us the steel plates and the chimneys. Nevertheless, we're considering buying a plate rolling machine in the future to make the chimneys. For the moment we have just bought a welding set for making the grills.

So it's worth continuing the investment.

Of course, we feel that it's profitable. Also, now we know more about how to work and go forward. We can feel the change in our lives. It was a huge leap forward and now we're living in a different way. We also met new people and learned a lot from them.

You have children, how do you balance being a mother with your work?

We have three children. The oldest is 15, the second 11 and the third 2. For example, if we have to go somewhere else to build cookstoves at the weekend we take our eldest boy with us. We get him involved so that he can learn. Also -thank God- my mother is still with us and when I go to work the children stay with her.

And what do the rest of your family and the community think of your business?

All my family are very happy with my work and almost all of them have a new cookstove. And when they know I'm going to work they realise that there are many people who really need these products. Furthermore, in my community the ICS are very popular. I even hold workshops and invite them to take part.

How many have you sold?

In 2013 there were months in which I sold very few, but in total we sold 139 ICS that year. Nevertheless, since we incorporated in 2014 the demand has increased and we've sold around 1,000 cookstoves. We have also trained 14 young people, of whom eight are still with us, and we have rented premises where we store the material we buy.

“All my family are very happy with my work and almost all of them have a new cookstove.”

WHO guidelines for improving indoor air quality

Archive EnDev-CIZ

Given the contrast between the clear sky and the pollution created by cooking fires inside homes, the new World Health Organisation directives expose the dangers of burning solid fuels indoors and establish goals for reducing emissions of contaminants that are hazardous to health.

By **Agnes Soares da Silva**, regional environmental epidemiology advisor to the Pan-American Health Organisation's Special Programme for Sustainable Development and Equality in Health; and **Karin Troncoso**, consultant to the same programme.

Improved cookstoves are a means for reducing dangerous fumes produced by wood-burning for cooking.

It is important to take into account the goals proposed by the WHO and to consider health as a target.

In the Americas, the annual burden of diseases attributable to exposure to smoke and suspended particles from the use of solid fuels in homes causes approximately 80,123 deaths, 34% of them from cerebrovascular accidents, 26% from ischaemic cardiopathy, 22% from chronic obstructive lung disease, 12% from infantile pneumonia and 6% from lung cancer.

Faced with this reality, the new “World Health Organisation (WHO) indoor air quality guidelines - household fuel combustion” describe the dangers of using solid fuels indoors and establish goals for reducing emissions of pollutants that are hazardous to health from fires, cookstoves and lamps for household use.

The recommendations stress the need to improve household access to less-polluting sources of energy, such as liquid petroleum gas, biogas, ethanol and electricity. Furthermore, the directives include goals for the reduction of carbon monoxide (CO) emissions and particulate matter in suspension (PM 2.5) for the different types of domestic equipment used to evaluate the health consequences of exposure to these compounds and the maximum permissible levels for indoor air to ensure a healthy environment.

Thus compliance with these goals means that 90% of homes will have achieved the values of PM 2.5 (annual average) and CO (average over 24 hours) proposed in the directives, which are 10 µg/m³ for PM 2.5 and 7mg/m³ for CO and which in practice are obtained by virtually eliminating the use of solid fuels for cooking indoors.

RECOMMENDATIONS

The directives include four recommendations. The first concerns the maximum permissible level of indoor PM_{2.5} and CO emissions (see illustration).

The second recommendation concerns the policy to be applied during the transition to the use of low emission technologies, something that is essential for compliance with the first recommendation. Hence the statement “governments and their executive associates should draw up strategies to accelerate efforts aimed at meeting the goals set out in the air quality directives. When it is necessary to implement intermediate measures priority should be given to fuels and technologies that provide substantial health benefits”.

The third recommendation concerns the use of coal in homes. It states that “untreated coal should not be used as a domestic fuel. Furthermore,

few studies have been carried out on the use of treated coal and although the evidence points in that direction it is not sufficient to recommend its use strongly”.

The fourth suggestion is considered conditional, and involves the use of kerosene indoors. It states that “kerosene is not recommended for indoor use whilst research into its effects on health is ongoing”. There is poor-quality evidence on the risk of illness deriving from the use of kerosene and evidence of regular quality on the risk of burns related to its use.

Finally, another advantage would be additional benefits for health and the climate. It states that “taking into account the possibility of creating synergies between climate policy health policies, including financing, we recommend that governments and other entities responsible for drawing up and applying policies to mitigate climate change should consider adopting measures relating to the use of household energy and make such evaluations as may be necessary to maximise the benefits to health and the climate”.

CONCLUSIONS

In order to achieve the WHO air quality directives, solid fuels for cooking have to be replaced almost completely with clean fuels. This target, although desirable, is difficult to achieve in the short term and therefore it is important to consider intermediate measures. This requires an assessment of the level of emissions by each technology, as well as the use of multiple technologies for cooking.

Recent studies have calculated emissions from various combinations of cookstoves (as happens in real life), with the weight of emissions produced by a traditional fire a significant part of the total of user exposure to PM 2.5 and CO. This emphasises the importance of eliminating indoor smoke in any form of intervention. So, in order to meet air quality goals and improve the health of socially and economically vulnerable people, countries should make rapid progress with projects that provide access to cleaner energy and to cookstoves and space heaters, as well as lamps in certain regions.

It is important to take into account the goals proposed by the WHO and to consider health as a target for programmes to replace fuels and technologies. Thus, decided multi-sector action by governments and organised society will ensure that access to clean air becomes a reality for everyone.

Studies carried out in specialized laboratories allow for the calculation of permissible emission levels.



Indoor reduction goals

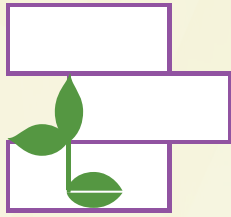
Recommendation	Emission reduction goals	Character of the recommendation
The emission rates for PM _{2,5} and CO arising from indoor use of fuels should not exceed the following goals	PM _{2,5} (without ventilation) 0.23 mg/min	Vital
	PM _{2,5} (with ventilation) 0.23 mg/min	
	CO (without ventilation) 0.23 mg/min	
	CO (with ventilation) 0.23 mg/min	

Source: WHO indoor air quality guidelines - household fuel combustion, Geneva, 2014.

Pan-American Health Organisation

The Pan-American Health Organisation (PAHO), founded in 1902, is the world's oldest international public health agency. It provides technical and other aid to improve health and living standards in the countries of the Americas. The OPS acts as the regional office in the Americas for the World Health Organisation (WHO) and is a member of the United Nations.

www.paho.org



ASPEm

ASSOCIAZIONE SOLIDARIETÀ PAESI EMERGENTI
ASOCIACIÓN SOLIDARIDAD PAÍSES EMERGENTES

Promovemos el cuidado de la salud y el medio ambiente, a través del fortalecimiento de capacidades de **emprendedores y emprendedoras de cocinas mejoradas** en diversas zonas del Perú.

**CONSTRUYE
CON NOSOTROS
UN PROYECTO, UNA
CAMPAÑA, UNA
INICIATIVA**

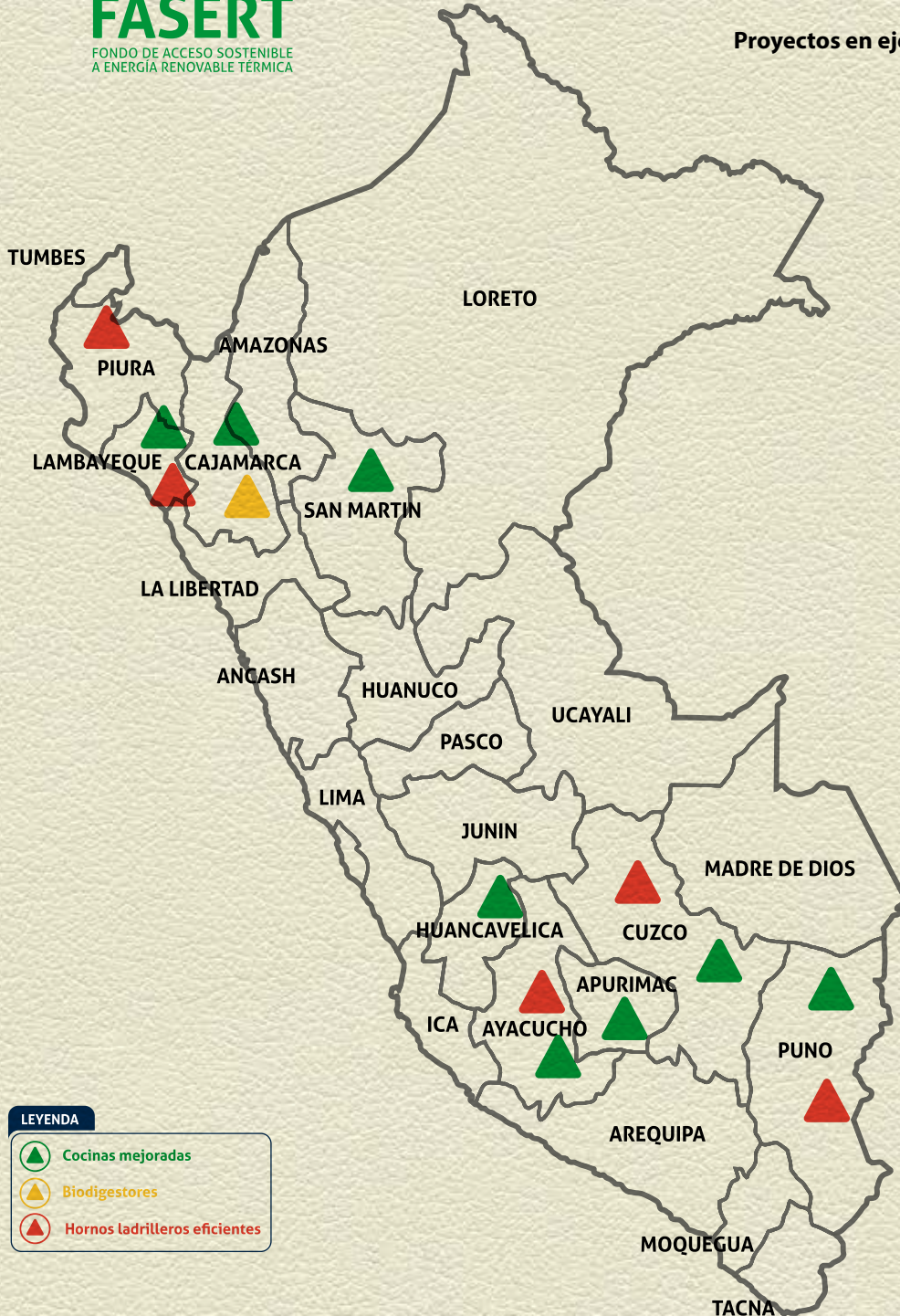


Calle Coronel Zegarra 270 Jesús María, Lima - Perú.
Teléfonos: (+511)265-9448 / 266-0504 / E-mail: comunicaciones@aspem.org
web: www.aspem.org / facebook: [ASPEm_Perú](https://www.facebook.com/ASPEm_Peru) / twitter: [@ASPEmPeru](https://twitter.com/ASPEmPeru)



El Fondo de Acceso Sostenible a Energías Renovables Térmicas (FASERT) busca dinamizar la cadena de valor del mercado de tecnologías de energía renovable térmica (TERT) a través del fortalecimiento de las capacidades técnicas y financieras de diferentes empresas y proyectos. Con ello, el fondo busca mejorar la calidad de vida de las poblaciones de zonas rurales y periurbanas del Perú.

Proyectos en ejecución con el apoyo de FASERT:



LEYENDA

- Cocinas mejoradas
- Biodigestores
- Hornos ladrilleros eficientes

swisscontact

TECNOLOGÍA: HORNO LADRILLERO EFICIENTE
CANTIDAD: 50
UBICACIÓN: PUNO, CUSCO, AYACUCHO, PIURA, LAMBAYEQUE
COSTO DEL PROYECTO (USD) 121.759
WWW.REDLADRILLERAS.NET
WWW.SWISSCONTACT.ORG
TELÉFONO: (+511) 264 6247/ 264 2547
E-MAIL: SC-PERU@SWISSCONTACT.ORG.PE

COFIDE

TECNOLOGÍA: COCINA MEJORADA
CANTIDAD: 960
UBICACIÓN: AYACUCHO, LAMBAYEQUE
COSTO DEL PROYECTO (USD) 217.802
WWW.COFIDE.COM.PE
AUGUSTO TAMAYO 160, SAN ISIDRO, LIMA
TELÉFONO: (+511) 615 4001
E-MAIL: MLAYSECA@COFIDE.COM.PE

SOLUCIONES PRACTICAS

TECNOLOGÍA: COCINA MEJORADA
CANTIDAD: 980
UBICACIÓN: CAJAMARCA
COSTO DEL PROYECTO (USD) 241.216
WWW.SOLUCIONESPRACTICAS.ORG
CALE TOMÁS A. EDISON 217, SAN ISIDRO, LIMA
TELÉFONO: (+511) 441 2950/ 441 30335 (231)
E-MAIL: INFO@SOLUCIONESPRACTICAS.ORG.PE

SNV

TECNOLOGÍA: BIODIGESTOR
CANTIDAD: 410
UBICACIÓN: CAJAMARCA
COSTO DEL PROYECTO (USD) 240.000
WWW.SNVLA.ORG
AV. JORGE BASADRE 1120, SAN ISIDRO, LIMA
TELÉFONO: (+511) 206 8830
E-MAIL: PERU@SNVWORLD.ORG

SIEMAC EIRL

TECNOLOGÍA: COCINA MEJORADA
CANTIDAD: 1.100
UBICACIÓN: SAN MARTÍN
COSTO DEL PROYECTO (USD) 215.828
JR. 20 DE ABRIL N° 1439, MOYOBAMBA, SAN MARTÍN
E-MAIL: SIEMAC_EIRL@YAHOO.COM

ASPEM

TECNOLOGÍA: COCINA MEJORADA
CANTIDAD: 800
UBICACIÓN: APURÍMAC, AYACUCHO, PUNO
COSTO DEL PROYECTO (USD) 141.628
WWW.ASPERM.ORG
TELÉFONO: (+511) 265 9448/ 2660 504
E-MAIL: COMUNICACIONES@ASPEM.ORG.PE
FACEBOOK: ASPEM_PERU
TWITTER: @ASPEMPERU

Caritas Cusco

TECNOLOGÍA: COCINA MEJORADA
CANTIDAD: 800
UBICACIÓN: CUSCO
COSTO DEL PROYECTO (USD) 194.861
WWW.CARITASCUSCO.ORG
CARMEN BAJO N° 206, SAN BLAS, CUSCO
TELÉFONO: (084) 226 966
E-MAIL: CCUSCO@CARITAS.ORG.PE

INSTITUTO TRABAJO Y FAMILIA

TECNOLOGÍA: COCINA MEJORADA
CANTIDAD: 6.350
UBICACIÓN: HUANCVELICA
COSTO DEL PROYECTO (USD) 891.484
WWW.ITFYF.ORG.PE
WWW.SEMIBRANDO.ORG.PE
TELÉFONO: (+511) 652 3131 / 652 3134
E-MAIL: SECRETARIA@ITFYF.ORG.PE



Implementada por
giz
Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Para más información:
www.fasert.org
fasert@iica.int