



**SMART VILLAGES**  
New thinking for off-grid communities worldwide

**PRACTICAL ACTION**  
Technology challenging poverty



## Practical Action and Smart Villages Workshop on energy planning from the bottom up: The role and place of community-led approaches in national energy planning in West Africa



**Workshop Report 32**

February 2017

LOMÉ, TOGO

Key words:  
Energy planning, Energy access, West  
Africa, PPEO 2016

## Smart Villages

We aim to provide policymakers, donors, and development agencies concerned with rural energy access with new insights on the real barriers to energy access in villages in developing countries—technological, financial and political—and how they can be overcome. We have chosen to focus on remote off-grid villages, where local solutions (home- or institution-based systems and mini-grids) are both more realistic and cheaper than national grid extension. Our concern is to ensure that energy access results in development and the creation of “smart villages” in which many of the benefits of life in modern societies are available to rural communities.

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**Practical Action** is an international non-governmental organisation (NGO) that uses technology to challenge poverty in developing countries. We find out what people are doing and help them to do it better. Through technology we enable poor communities to build on their skills and knowledge to produce sustainable and practical solutions- transforming their lives forever and protecting the world around them.

Practical Action’s projects are organised under four programme themes: Sustainable energy access; Food and agriculture; Urban water and waste; Disaster risk reduction. Two cross-cutting themes are also present across our work: Climate change and Markets. We have a distinctive approach to fighting poverty, with technology justice at the heart of everything we do. In West Africa, Practical Action works through its subsidiary Practical Action Consulting sharing over 40 years of international expertise; and providing independent and professional consulting in the use of technology for poverty reduction to governments, NGOs, aid agencies and the private sector.

## Publishing

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## ACRONYMS AND ABBREVIATIONS

ECOWAS: Economic Community of West Africa States

ECREEE: ECOWAS Centre for Renewable Energy and Energy Efficiency

PA/PAC: Practical Action/ Practical Action Consulting

PPEO: Poor People’s Energy Outlook

SE4ALL: Sustainable Energy for All

SVI: Smart Villages Initiative

SDG: Sustainable Development Goals

## INTRODUCTION

As the world moves towards 2030, the deadline of the Sustainable Energy for All (SE4ALL) Initiative, it is important to review the achievements of the past few years and readjust our path to meet the goal. For this reason, Practical Action together with the Smart Villages Initiative held a one-day regional workshop on rural energy access planning on 20 February 2017 in Lomé, Togo. The workshop was coupled with the West Africa launch of the 2016 Poor People's Energy Outlook (PPEO 2016) and was attended by around 50 participants, including policymakers, academia, representatives of the private sector, rural communities' leaders, media, and civil society. The objective of the workshop was to analyse the potential for community-based approaches to strengthen national energy planning processes in West Africa. Specifically, the workshop aimed to:

- Share experiences of energy planning processes within the ECOWAS region
- Highlight the importance of planning processes to meet rural energy needs
- Identify the main opportunities and constraints related to planning to meet rural energy needs
- Share findings and lessons learned from a study of energy needs and opportunities in 12 rural communities in Togo, Kenya, and Bangladesh (PPEO 2016)
- Identify key constraints and opportunities for using community-based approaches and the implications for energy planning processes in West Africa
- Formulate recommendations to strengthen energy planning processes to meet SE4ALL objectives in rural areas of West Africa

The report summarises key points arising from the presentations and discussions.

## INAUGURATION OF THE WORKSHOP

### Introduction of Practical Action and Smart Villages Initiative

Mary Allen, Practical Action

The Practical Action Regional Lead for West Africa, Mary Allen, gave the first speech and welcomed all the participants to the workshop. She introduced Practical Action (PA) to participants by noting that PA has been working for more than 50 years to bring appropriate technologies to rural communities for their development. The fields covered by PA are agriculture, rural development, and energy. She introduced the two other representatives of PA in West Africa at the workshop: Billy Yarro, the West Africa Energy Lead, and Minata Coulibaly, the West Africa Knowledge and Communication Manager.

### Molly Hurley-Dépret, Smart Villages Initiative

Following Mary Allen, Molly Hurley-Dépret from Smart Villages Initiative (SVI) took the floor by briefly introducing the organisation. She said that SVI's objective is to answer the following question, "Do people in rural areas have opportunities to improve their lives and livelihoods? Must they move to cities, or can we find an approach that will improve lives in rural areas as well?" She then introduced her two colleagues attending the workshop, Tinashe Chiurugwi and Stephanie Hirmer.



Mary Allen, Practical Action West Africa, and Molly Hurley-Dépret, Smart Villages Initiative

### Formal opening speech

Yaovi Nyamador, Ministry of Energy, Togo

The formal opening speech was given by Yao- vi Nyamador of Togo's Ministry of Mines and Energy.

In his speech, he first welcomed all the partic- ipants to the workshop and said that he was delighted to preside over the opening session. The PPEO 2016 highlights the importance for decentralised energy solutions planning from the

bottom up that help to define the minimum level of energy access to be targeted by development programmes and projects on the national level, but also within the framework of the Sustainable Development Goals (SDGs).

He mentioned the country's energy access situa- tion—Togo has a national electrification rate of 30.27% and a rural energy access rate of 6%—and praised the PPEO 2016 for giving the Ministry of Energy new ideas to address the country's energy access challenges.

Yaovi Nyamador concluded his speech by encouraging the attendees to read, question, and use the PPEO16 report to improve practical energy

access in Togo. He then declared the workshop officially open.



Yaovi Nyamador of Togo's Ministry of Mines and Energy during the opening ceremony

## SESSION A: PLANNING TO ACHIEVE SUSTAINABLE ENERGY FOR ALL

### Regional and national energy planning processes in the ECOWAS region in the context of SE4ALL

Heleno Sanches, ECREEE, Cabo Verde

The first presentation of the day, entitled “ECOWAS National Sustainable Energy Action Plans” was given by Heleno Sanches, a Renewable Energy Expert from the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECEEE).

He briefed the audience on the general energy context of the ECOWAS region, which has a population of 334 million, an electricity access rate of 42% (2012 estimation), and a modern cooking methods access rate of about 25%. Mr Sanches pointed out the significance of renewable energy resources across the region. The available energy resources include biomass, solar, hydro, and wind. To tap into this vast potential, ECOWAS Authority of Heads of State and Government adopted three sets of policies concerning renewable energy and energy efficiency in July 2013 in Abuja. ECREEE is overseeing the implementation of these policies in the region.

He further highlighted that ECREEE was selected as the SE4ALL focal institution for ECOWAS and helped the 15 ECOWAS member countries develop Sustainable Energy Action Plans. These national plans include a National Renewable Energy Action Plan (NREAP), a National Energy Efficiency Action Plan (NEEAP), and an Energy Access Action Plan, which is the Sustainable Energy for All Action Plan. They were developed and implemented in three phases according to the “Abidjan Process”, with the third phase, set to complete by 2020/2030, devoted to their implementation and monitoring.

In preparation of the ECOWAS Energy Week to be held in October 2017, a regional report that contains the regional action plan consolidation

process is being prepared. A step further in the Action Plans’ implementation is the development of the ECOWAS Investment Prospectus Framework, which is structured into four pipelines:

- generation, transmission, and distribution (on-grid)
- off-grid (mini-grid and standalone systems)
- bioenergy and cooking projects
- energy efficiency

Heleno Sanches closed his presentation by reviewing the policy targets of the 15 ECOWAS country action plans.

### Planning to meet rural energy needs Molly Hurley-Dépret, Smart Villages Initiative

Molly Hurley-Dépret gave a presentation that focused on the concept of “smart villages”, lessons learned from SVI’s West Africa Engagement, and several case studies focusing on productive uses of energy in West Africa.

The concept of “smart villages” is based on the idea that access to modern energy services can catalyse development. Energy is necessary to improve rural livelihoods, develop education and rural health services, and provide access to information to people in rural areas. Smart villages can give equal opportunities to rural villages, where 47% of the world population and 70% of the world’s poor reside.

The provision of services in rural communities (health, clean water and sanitation, education, etc.) is central to the “smart villages” concept, which, moreover, can enable improved livelihoods and offer opportunities for villagers to become

entrepreneurs. With access to energy and ICT, villagers are also able to participate in democratic processes, and community resilience can be developed and reinforced.

The Smart Villages Initiative's objective is to better understand how to bring appropriate, decentralised, sustainable energy solutions to rural communities. SVI has engaged with relevant stakeholders, including scientists, entrepreneurs, villagers, NGOs, financiers, media, regulators, and policymakers.

SVI has had six regional engagement programmes, located in East Africa, Southeast Asia, South Asia, South America, West Africa, and Latin America and the Caribbean. During the engagement programmes of 12 to 18 months, SVI organises workshops with local partners, delivers reports and policy recommendations, has information meetings and press workshops, and organises competitions for entrepreneurs. For example, in West Africa, SVI organised its first regional workshop in Accra, Ghana in May 2016 and a workshop on the energy-water-food nexus in Saly, Senegal in August 2016. Some of the key conclusions and recommendations formulated at the end of these workshops included the need for supportive, enabling, and stable policy frameworks, an integrated approach gathering key national actors, and engaging the community as partners, not only as beneficiaries.

Molly Hurley-Dépret concluded her presentation with six real-world case studies: Bonergie, ANEV Eco-villages in Senegal, Solar Sister in Nigeria, Solar Kiosk in Ghana, GERES renewable electrification enterprise incubator in Mali, and SNV's fish-smoking project in Ghana.

### Question and answer session

Following the two presentations, there was an opportunity for workshop participants to put questions to Heleno Sanches and Molly Hurley-Dépret.

### Questions to Heleno Sanches

The first question raised was about how ECREEE carried out the measurement of wind energy speed to produce the wind map of ECOWAS. The answer given was that ECREEE did not carry out wind measurement but rather gathered information from energy directorates in the member countries. Furthermore, Mr Sanches highlighted the fact that before implementing a wind energy project, it is recommended to carry out at least one year of wind measurement.

A question was asked about the development of the ECREEE investment prospectus. Mr Sanches answered by saying that a national workshop to call for projects was held in Togo in September 2016 and the results will be released in six months' time; that is, around March or April this year. In addition it should be noted that ECREEE has the possibility to co-finance up to 50% of a sustainable energy project's total cost through its financing facility. The investment prospectus allows them to reach investors and project developers at the same time for good implementation of projects. Furthermore, ECREEE is working with various ECOWAS government bodies to overcome barriers related to implementation of clean energy access projects.

A participant asked why ECREEE actions were not "visible" in other ECOWAS countries. Mr Sanches answered that ECREEE has a website on which information is displayed and updated regularly, but the remark will be passed on to ECREEE's communications officer for further improvement.

Another concern was about how Cape Verde was the only country to advance in renewable energy development in the region. Cape Verde has achieved an electricity access rate of 95%, mostly with renewables, because the country is small and it is easy to achieve rapidly a high number of household connections. In addition, the country benefits from technical assistance from ECREEE through the financing of training and workshops,

with the objective for it to take the lead and show itself as a role model in the sub-region.

### Questions to Molly Hurley-Dépret

A participant asked about the implementation of the case studies: do they have the financial support of SVI? The answer was no. The case studies are not financed by SVI but they are presented to showcase to the workshop participants the success stories achieved elsewhere in the region. Mrs Hurley-Dépret didn't know what type of funding is used to finance the projects.

Another question concerned the type of employment generated by the smoking fish project. She answered that this is an SNV project and that they could provide further details about employment.

One of the participants asked a question about the picture from the SNV project showing little girls working: should they not be attending school? Molly Hurley-Dépret said that the picture was actually taken on a Sunday, and that SNV ensures children do not work on its projects during the week but rather attend school as normal.



Community members of selected localities in Togo: Kame, Assoukoko, Nandjoare, and Koulmasi

## Group work: Planning to achieve sustainable energy for all in West Africa: what are the main opportunities and constraints for rural energy needs in particular?

The workshop participants were divided into groups to discuss opportunities and constraints. The results of their conversations were then reported and discussed in a plenary session.

### Opportunities

- *Sustainable Development Goal 7 is dedicated to energy access:* Globally, it is recognised that energy access is an important enabler for development and a specific goal has been assigned to it, making energy access one of the world's top priorities. There is more interest in the issue, and more actors are now dedicated to providing access to energy at the macro or community levels.
- *The renewable energy market is expanding:* At present, the renewable energy market is expanding in West Africa and more governments are adopting renewable energy because of the opportunity it offers to achieve national energy access.
- *Costs of renewable energy equipment are declining:* Costs of renewable energy technologies are declining, especially for solar. In the past five to ten years, the cost of solar panels has declined by about 50%. In the coming years, the cost will continue to decline because of economies of scale, which represents a very good opportunity for the rural poor to get access to electricity and clean cooking solutions.
- *Huge demand for renewable energy technologies in rural areas:* The level of energy access in West Africa is low, and renewable energy is the best option to provide energy access for rural areas where the main grid cannot reach. Therefore, renewable energy mini-grids and stand-alone systems are required. In addition, renewable energy technologies can be adapted to many contexts, making them suitable for off-grid users.
- *The connection between stakeholders and buy-in of beneficiaries:* At present, more and more platforms are being set up regionally and nationally for policy dialogue among energy access stakeholders to help them engage with each other. Project beneficiaries have also gradually become more aware of the renewable energy opportunity for energy access.
- *The huge potential of renewable energy and human resource availability:* As shown in Mr Sanchez' presentation, West Africa is endowed with huge potential for renewable energy, which is still untapped. In addition, organisations such as ECREEE have increased their capacity and human resources to implement renewable energy projects.
- *Ongoing decentralisation process:* some countries in the region, like Togo, have started a decentralisation process that will give more decision-making powers to rural communities. The latter can then decide their real priorities and commit more resources and efforts to improving energy access.
- *A motivated private sector willing to bring technologies to underserved rural areas:* the private sector in the region has seized the opportunity offered by the drive to improve energy access, and day by day new companies are being created to serve the rural poor by helping them get access to energy. Local energy equipment manufacturing capacity will reduce the burden of sourcing technologies from afar.



Clean energy entrepreneurs from West Africa showed their innovations during workshop breaks

### Constraints

- *Weak legal, regulatory, and policy framework:* One of the major constraints for renewable energy development in the sub-region is the inappropriate legislative framework, which does not give investors the right signal to enter into project development and investment.
  - *Lack of accurate data for planning purposes:* Across the region, there is a lack of accurate data on available renewable energy potential and also on the governments' electricity expansion plans. This makes it risky for project developers to develop bankable projects for energy access.
  - *Political and traditional conflicts:* There are conflict zones all over the region, increasing the political risk associated with project development and financing. Without long and lasting peace, investors feel unsafe investing their money in such a context.
  - *Lack of financing:* Financing is another big problem for energy access in West Africa.
- Until now, the projects implemented have been financed either by the government or by development organisations. The private sector is reluctant to finance energy access projects because of their perception that the rural poor are not credit-worthy.
- *Lack of project beneficiaries co-financing:* Some development organisations require that project beneficiaries participate financially in the project. Because the beneficiaries are poor, they sometimes fail to access this funding because they cannot contribute.
  - *High investment costs in technology acquisition and complexity of the proposed technologies:* Renewable energy technologies have the unique characteristic of demanding huge upfront funds that are usually difficult to mobilise. Further, they are “imported” technologies, which are difficult for local workers to handle.

## SESSION B: PLANNING TO MEET RURAL ENERGY NEEDS IN PRACTICE

### Rural People's Energy Outlook 2016— Togo: key findings from research carried out by Practical Action

This session was led by Practical Action West Africa and was divided into three parts:

1. An introductory presentation to set out the objective of the study, with the methodology and tools used for the PPEO 2016: Billy Yarro, West Africa Energy Lead;
2. The second part gave communities where the studies were undertaken the opportunity to present their energy access context and challenges.
3. The third part showcased key findings of the research conducted in all four communities.

#### Part 1: Introduction, research objectives, localities, process, and tools

Billy Yarro began his presentation by answering the question, “What is the Poor People’s Energy Outlook (PPEO) series?” According to the World Bank’s Independent Evaluation Group (IEG), without significant improvements in efforts to increase energy access, global population growth will actually lead to an increase in the absolute number of people lacking any form of modern energy services: from 1.1 billion today to 1.2 billion by 2030 (IEG, 2015). The Poor People’s Energy Outlook series (PPEO) was launched in 2010 to shine a light on energy access from the perspective of the poor.

For the first series, three reports were released: the 2010 report outlining the range of energy services that people need in their homes (lighting, cooking, etc.); the PPEO 2012 addressing the energy services needed to earn a living across a range of productive activities, including agriculture and micro and small-scale enterprises; and the PPEO 2013, placing the spotlight on the impact

that improved energy access can have on community facilities, including health, education, and infrastructure services such as water and street lighting. The PPEO 2014 provides a revision of the key findings from the three previous editions, updated to reflect the changing global energy debate and helping to reframe the concept of Total Energy Access within a community.

The most recent report, PPEO 2016, explores national energy access planning from the bottom up, creating energy access plans for communities in Bangladesh, Kenya, and Togo, based on their expressed priorities and needs. The research encompasses all the spheres of energy access, such as the different energy needs between men and women. Further, it embraces all forms of energy, including electricity and cooking fuels, as well as all feasible and appropriate means of energy provision, i.e., stand-alone systems, mini-grid, and grid-connected.

The methodology for PPEO 2016 included an initial mapping of communities to record household locations, productive activities, community facilities, and energy resources. This enabled PA to identify which options were viable for each community and to establish potential electricity distribution systems for each area. Costs and performance details of different technologies and fuels were also collected to estimate the daily cost of providing each access option at different tiers in each community.

The community were then consulted to understand their energy needs, priorities, and willingness to pay for electricity, cooking, and street lighting.

From the results from the surveys, the energy access plan for each community was designed for different levels of consumption: households, communities, and enterprises or businesses.

An iterative process was made to identify the best means of providing the energy needed, taking into account the costs and preferences identified in the surveys and different scenarios for providing the lowest energy access cost for the community as a whole. The different scenarios which have been considered were based on

- Respondents' views of their needs based on energy appliances (both for electricity and cooking) they wished to use
- A common standard of MTF Tier 3 for electricity and Tier 2 or 4 for cooking
- The level and forms of access for which people were willing to pay the full cost

### Part 2: Voices of the communities

The members of the four Togolese communities involved in the study then addressed the meeting: Kamé, Assoukoko, Koulmasi, and Nandjoare. The communities were represented by their chief and the President of the Community Development Organisation.

Two communities out of four expressed their needs through their representatives. Kamé representatives said that their community was legally constituted in 1966, but until now, it has no access to energy. The community has schools which cannot perform to their full potential due to a lack of energy; hence children have to travel to a neighbouring village, some kilometres away, to access a computer. The representative ended by emphasising the problem of water access. The Koulmasi representative acknowledged the same concerns and reinforced the need for potable water access in their community.

### Part 3: Findings of the research in all four communities

In this section, PA summarised the findings from the survey across the four study communities.

The session first highlighted the percentage of the population below the poverty line in the prefecture and the average electricity connection rate. The prefecture of Tandjoare where belongs the locality of Nandjoare was revealed to have the highest poverty rate, with 94% of the population below the poverty line and just 1.3% of the prefecture connected to electricity. Electricity connection rates in households vary from 4% in Nandjoare to 9% in Kame, with the majority using battery torches for lighting.

A comparison of the source of lighting between households with access to electricity and those without in the four prefectures was carried out. The source of lighting in the households that have access to electricity was 100% electricity in Koulmasi and Nandjoare, 73% in Assoukoko, and 57% in Kamé. In Nandjoare and Assoukoko candles are the second most-used source of lighting. It was found that households without electricity access mainly rely on kerosene, dry batteries, and candles for lighting.

The cooking fuel used in all the communities is mostly biomass: 98% in Nandjoare and Koulmasi, 83% in Assoukoko, and 64% in Kamé. Other cooking fuels used include charcoal (34% in Kame and 9% in Assoukoko) and agricultural residues (about 2%). LPG and kerosene are scarcely used by the communities. In terms of cooking devices, 100% of households in Koulmasi and Nandjoare, 83% in Assoukoko, and 65% in Kamé used three stones cook-stoves. The other devices used include charcoal stoves, Jiko-type charcoal stoves, LPG, and process stoves.

The study also revealed differences between men and women with regard to the collection of cooking fuel. Women were more involved in Koulmasi and Nandjoare, at 95% and 92% respectively; in Assoukoko and Kame men and women are more equally involved in the collection of biofuels.

It was further found that enterprises require a range of energy services and use a range of supplies to meet those needs. For lower-powered devices (e.g. for lighting), they usually use batteries. For higher-powered needs (e.g. for cooling or motive power), diesel, petrol, or kerosene is mostly used.

The communities were asked to prioritise energy uses at household level. Results show that **household** lighting is the first priority in all the communities, with cooking and preservation the second priority in all the communities except in Nandjoare, where they expressed water pumping needs.

From these findings, energy access plans for each community were designed for both electricity and cooking needs. For total electricity access in Kamé and Assoukoko, a combination of autonomous solar home systems in isolated areas of the community (10% in Assoukoko and 9% in Kamé), and a local mini-grid network for the rest of the community was proposed. In Koulmasi and Nandjoare, solar home systems would be the most affordable option for providing electricity to the entire village. The amount of investment required to provide the electricity, including for mini-grid and stand-alone installations, varies from US\$0.51 million in Nandjoare to US\$1.96 million in Kamé.

Proposed cooking solutions for each community were very diverse, depending on their preferred choices or plans. In Kamé and Assoukoko, cooking solutions included electrical cooking, LPG, biogas stove, and improved charcoal stoves. In Koulmasi, cooking solutions were mostly improved charcoal and wood stoves. All types of cooking solutions were applicable in Nandjoare.

Generally, the study recommended rebalancing rural electrification plans in favour of mini-grid and standalone solutions. An overemphasis on traditional grids wastes both time and money in most cases. Concerning the affordability of the solutions, the research showed that standalone household systems were the best solutions for smaller, dispersed communities. However, it was found that the costs are eight times higher than that of grid connection. For that reason, a recommendation of financing packages to help the poorest households get access to good quality solar products has also been formulated.

As far as gender issues are concerned, women tend to prioritise energy for lighting, cooking, pumping drinking water, and processing crops. To help achieve this, it is recommended to mainstream gender concerns in energy planning. Sectoral integration and coordination with other related ministries, such as the Ministry of Water and Agriculture, would be beneficial. Findings also reveal a strong demand for clean cooking solutions, so plans to promote the uptake of biogas systems alongside improved biomass stoves and LPG uses are needed. Last but not least, street lighting was mentioned as the second highest priority in all four communities, and this should be included in rural electrification plans.

Billy Yarro concluded his presentation by introducing the forthcoming editions of the PPEO. These will build on any evidence gaps by demonstrating what it means to deliver pro-poor community and national energy planning (PPEO 2016), further exploring how to finance energy access plans (PPEO 2017), and highlighting the systemic and programmatic delivery of energy access at scale (PPEO 2018)



Billy Yarro, West Africa Energy Lead, during his presentation

### Question and answer session

Participants asked about the criteria for selecting the communities, details of the research, how the report took into account the current energy planning of the Ministry of Energy, and what will be done to ensure a proper ownership of the results by the national authorities.

Billy Yarro replied that the communities were selected to be representative of the country. It included criteria such as their geographical location, socio-economic activities, and climate, among others. The research lasted about eight months and was funded by DFID, GIZ and the Mott Foundation. Analysis of the study did consider the national action agenda. As for the way

forwards, the preparation of the 2017 report on the financing of the energy access plan is ongoing and the 2018 reports will be planned very soon. For now, the results of the research have been disseminated and further actions will be taken in the future.

The representative of the power regulator, who was also present at the workshop, announced that one of the communities surveyed, Assoukoko, has been selected to benefit from a government mini-grid project. The project is planned to be implemented by the end of 2017. The mini-grid scheme will consist of a 250 kWp solar power plant including three water pumping stations.

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## CLOSING WORKSHOP SESSION

Mary Allen from Practical Action West Africa led the rounding-up session of the workshop. She said that achieving energy access as formulated in the SDG 7 is key to achieving other Sustainable Development Goals. But for this to be a reality, it is important to rethink energy access planning, financing options and implementation of energy projects. This is the core objective of Practical Action and the Smart Villages Initiative, to bring electrification and energy services to poor rural populations. She reminded the participants that energy access goes beyond usual electrification planning and must take into account other en-

ergy needs, such as productive uses and energy for cooking. She reiterated the importance of crosscutting efforts amongst different ministries to address energy access in communities. Energy access should not be a task dedicated to the Ministry of Energy alone; departments such as the Ministry of Environment, Ministry of Agriculture, and the Ministry in charge of Women's Promotion should also be involved in the discussions. Mary Allen concluded her speech by expressing her satisfaction that Assoukoko will have access to electricity in the near future.

## ANNEX 1

### Media coverage of the event

#### 1. Fasozine

Défi énergétique en Afrique: l'alerte de Practical Action

Serge Mathias Tomondji

13 February 2017

Burkina Faso

<http://www.fasozine.com/actualite/environnement/897-defi-energetique-en-afrique-l-alerte-de-practical-action.html>

#### 2. Notre Nation

Énergie : Un rapport invite les dirigeants à se tourner vers les énergies renouvelables autonomes : Assane Koné

14 February 2017

Mali

<http://www.notrenation.com/spip.php?article3934>

#### 3. Eco conscience TV

ODD7 : Practical Action invente à repenser la planification énergétique ; Rolande Aziaka

21 February 2017

Togo

<https://www.ecoconscience.net/1152-2/>

#### 4. Agence de presse « Savoir News »

21 February 2017

Togo

<http://savoirnews.net/Lancement-a-Lome-du-rapport>

#### 5. Elites d'Afrique

Quelles solutions énergétiques pour les populations les plus pauvres?

Charles Kolou

23 February 2017

Togo

<http://elitedafrique.com/developpement/solutions-energetiques-populations-plus-pauvres/>

Video and tweet : <https://twitter.com/search?q=%23PPEO16&src=typd&lang=fr>

Watch on Facebook

<https://www.facebook.com/practicalactionafrique/edelouest/>

## ANNEX 2: WORKSHOP ATTENDEES

Atri Koffi Eli	Pmf/Fem
	Pnud
Kpandja Cherif	Urbis Foundation
Ouro-Djobo Sanouri	Les-UI
Afanou N'boueke	Dge/Mme
Bikor-Azpankou Jb	Ezo Energie Du Future
Awili Prénom	Mdbajej Pn-Ptfm
Ezian Koffi	Arse
Agbezo Dodji	Sunre F/Ao
Ndiaye Pape	Boad/Crc
Saba Magnédina	Boad/Crc
Amoussou Eric	Boad/Defi
Lebachelier Elodie	Entrepreneurs Du Monde
Frere Jean Pierre A. Boyodi	Centre Ebpesl
Agbanator Yedidya	Esco-Togo Sarl
Nabiliou Amy	Esco-Togo
Vliti K. Mokpokpo	Eco-Energy Togo
Tinashe Chiurugwi	Smart Villages Initiative
Heleno Sanches	Ecreee
Togbui Kowouoi Afo li	Chef Kame
Affo Kossivi	Pdt Cvd Kamé
Gnaouta Woffo	Pst Cvd Assoukoko
Egbare Alidou	Chef Assoukoko
Gouti Komliaté	Secrétaire
Nigame Laré	Chef Village
Kantame Mokpieti	Acidi-Solar
Douti Kombiani	Sécrétaire
Kok Dine	Chef Village
Yaovi Nyamador	Direction Générale Energie
Fiaboe Enyonam	Ong Jve
Philippe Dweggah	Ong La Colombe
Molly Hurley-Depret	Smart Villages
Gilles Oblasse	Afrique Revelation

Adam Adjonou	Roc-Td
Dodji Ketohou	Togo Portail
Yerima Amidatou	Fijeef
Nicolas Agbossou	Bbc Afrique
Lawson Nayi	Voa Afrique
Parfait Koani	Practical Action
Aphtal Cisse	Practical Action
Minata Coulibaly	Practical Action
Fortunay B. Koudjowou	Saber
Laurent K. Domegni	Econoler
Mery Yaou	Ministère De L'environnement
Ayawo Afandoe	Solartec
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**SMART VILLAGES**  
New thinking for off-grid communities worldwide

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Practical Action is an international non-governmental organisation (NGO) that uses technology to challenge poverty in developing countries. We find out what people are doing and help them to do it better. Through technology we enable poor communities to build on their skills and knowledge to produce sustainable and practical solutions- transforming their lives forever and protecting the world around them.

Practical Action's projects are organised under four programme themes: Sustainable energy access; Food and agriculture; Urban water and waste; Disaster risk reduction. Two cross-cutting themes are also present across our work: Climate change and Markets. We have a distinctive approach to fighting poverty, with technology justice at the heart of everything we do. In West Africa, Practical Action works through its subsidiary Practical Action Consulting sharing over 40 years of international expertise; and providing independent and professional consulting in the use of technology for poverty reduction to governments, NGOs, aid agencies and the private sector.