



## Energising Development (EnDev) Programme

### Country Project Rwanda

Country	Rwanda
Technology	solar, hydro (biogas)
EnDev 1	05/2006 – 09/2009
EnDev 2	10/2009 – 06/2019
Budget	€ 15,641,000
Partners	Rwanda Energy Group (REG), Ministry of Infrastructure (MININFRA)
Objective	830,430 people with energy for lighting / electrical appliances 20,544 people with cooking/thermal energy
Achieved until	35, 392 people with energy for lighting / electrical appliances
12/2014	15, 561 people with cooking/thermal energy

### Background

Rwanda's energy consumption is amongst the lowest in the world. So far, 24% of the population has access to the electric grid (MININFRA 2016) and 2.6% with off-grid solutions in rural areas. Although larger industries are being connected to the national grid, most small businesses in rural areas also remain without access to electricity. Kerosene lighting is widespread, causing high energy costs and negative health impacts for rural households.

The Rwandan Government is working to improve energy infrastructure by developing hydropower, methane gas and solar and aims to increase production capacity from 213 MW in 2016 to 563 MW by mid-2018, mainly by promoting private sector engagement. Additionally, it aims to connect 48% of the population to the national grid by mid-2018, while at the same time developing off-grid technologies such as stand-alone solar systems and isolated grids to reach at least 22% of the population. These technologies can offer a cost efficient way to satisfy most energy needs of people in rural areas and in some cases generate a local economic boost through productive uses of energy. The private sector has a key role, acknowledged and supported by the

government, in promoting and selling these technologies.

### Project Approach

EnDev started working in Rwanda in 2006 with an approach that focused on the private energy sector and maintained this throughout the project.



Construction of Musarara MHPP

The Private Sector Participation in Micro-hydro Power Supply for Rural Development project (PSP Hydro) utilised Public-Private Partnerships (PPP) to enable small and medium-sized businesses to install and operate micro hydropower plants. EnDev provided technical, business management and financial support to consolidate the participation of private MHPP developers in the hydro sector. At the same time, EnDev Rwanda worked at the policy level by supporting efforts of the Ministry of Infrastructure (MININFRA), Rwanda Energy Group (REG), Rwanda Utilities Regulatory Authority (RURA) and other stakeholders to develop a sustainable energy strategy and establish a suitable legal framework for promoting renewable energy.

Secondly, EnDev has supported the National Domestic Biogas Programme (NDBP) during its first phase (2007-2011). This

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programme has facilitated the development of a nascent industry, the installation of more than 2,500 systems and the access to energy of 15,000 people. Since 2012, the NDBP is run by REG without further EnDev support.

Since 2014, EnDev Rwanda also provides financial incentives (as grants) to the private sector to overcome initial market barriers through its Results-Based Financing (RBF) on solar lighting and village grids. Companies receive the incentives after delivering results which are monitored and verified. The funds are managed by a local micro-finance institution Urwego Opportunity Bank (UOB). EnDev provides technical backstopping and monitors fund administration, while the bank is responsible for the implementation. In this context, EnDev also works closely with Rwandese authorities to support the establishment of a sound and sustainable market development approach and regulatory framework. This support goes hand in hand with the development of a complete integrated financing framework (grant and loan) for the private sector jointly with the Government and development partners (Scaling up Renewable Energy Programme – SREP).



Pico PV systems (Neseltec, Dassy)

## Outcomes and Impacts

In the micro hydropower sector, the first three privately-owned micro-hydro power plants in Rwanda have been connected to the national electricity grid and provide electricity to around 20,000 people. The project developers are either Rwandan companies or joint ventures between Rwandan and international companies. One additional project is in construction while four are in advanced stage

of development and should start implementation very soon. In total, it's close to 3.4 MW of additional electricity that will be fed into the grid providing electricity to more than 85,000 people.

As a result of the private sector focus, 74% of the investment costs of the first 3 micro-hydro power plants were raised from private capital. Rwandan banks are increasingly financing private energy projects on a commercial basis and 15 private sector consortia participated in the latest tender, most of which involved international investors. Other companies are now starting to develop projects without grant from EnDev although some indirect support activities are still foreseen.

17 companies have signed a contract with UOB to benefit from the RBF. To this day, the RBF has supported the sales of 5,000 systems reaching close to 16,000 people. The first Village grid projects have also been developed, providing a total of 31 kW and to more than 2,600 people. For its last calls for proposal, EnDev has also received more interesting proposals to be developed.

## Lessons Learnt & Outlook

Many lessons learnt have been pulled out of EnDev's experience in Rwanda. However, one critical point that EnDev Rwanda demonstrated through its approach is the importance of ownership. Most private plants have demonstrated far better performance than comparable-sized public plants mostly because of the long term commitment of companies committed in projects where their financial engagement is also at stake.

Piloting Results-based Financing, EnDev endeavours to collect lessons learned and to verify some of the expected potential challenges related to the project approach. Some of these issues are the need for technical and business plan assistance for applicant companies; or securing pre-financing for a project that receives financing upon completion. These difficulties are mitigated by cooperating with external partners as well as liaising further with commercial banks.

Last but not least, policy framework and regulation remain a challenge for companies and a real potential gain for Rwanda. Supported by EnDev among others, progress has been made to clarify the country's long term rural electrification plans. This support and vision are essential to attract investments in a sector which needs predictability. EnDev will keep working closely with the private sector, the Government and Development partners to make sure Rwanda's ambitious objectives are reached.

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