



Energising Development Partnership – EnDev Country Project Rwanda

Country	Rwanda
Technology	solar, hydro, biogas
EnDev 1	05/2006 – 09/2009
EnDev 2	10/2009 – 12/2020
Budget	€ 17,750,000
Partners	Ministry of Infrastructure (MININFRA), Rwanda Energy Group (REG), private sector
Objective	Supply 1,021,430 people with energy for lighting/electrical appliances and 20,544 people with cooking energy
Achieved until 12/2017	164,919 people have been provided with energy for lighting/electrical appliances, a further 15,234 people with biogas for cooking. 12 social institutions and 250 small enterprises have gained access to modern energy services.

Background

Rwanda's energy consumption is amongst the lowest in the world. So far, 21% of the population has access to the electric grid (MININFRA 2014), while in rural areas this figure falls to below 2 per cent (Peters et al. 2014). Most of the infrastructure for producing and supplying energy was destroyed during the 1994 genocide. Although larger industries are being connected to the national grid, most small businesses in rural areas remain without access to electricity. Kerosene lighting is widespread, causing high energy costs and negative health impacts for rural households.

The Rwandan government **works to improve energy infrastructure** by developing hydropower, methane gas, wind, solar and

geothermal energy sources, and aims to increase production capacity from 126 MW as of September 2014 to 563 MW by mid-2018, mainly by promoting private sector engagement (MININFRA 2014). The aim of the Rwandan government is to connect 48% of the population to the **national grid** by mid-2019, while at the same time **developing off-grid technologies** such as stand-alone solar systems and isolated grids to reach another 22% of the population. These technologies can satisfy the most urgent energy needs of people in rural areas who will not have access to electricity in the next five years otherwise, save people money and help them prepare for electrification. The **private sector has a key role** in promoting and selling these technologies.



Inauguration of the Mazimeru MHPP

Project Approach

Energising Development (EnDev) started working in Rwanda in 2006 with an approach that **focused on the private energy sector** and has maintained this focus throughout the project.

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The Private Sector Participation in Micro-hydro Power Supply for Rural Development project (PSP Hydro) utilises Public-Private Partnerships (PPP) to **enable small and medium-sized businesses to install and operate micro hydropower (MHP) plants**. EnDev provides technical, business management and financial support, the latter as viability gap funding, to consolidate the participation of private MHPP developers in the hydro sector. At the same time, EnDev Rwanda works at a policy level by supporting efforts by 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). Since 2012, the NDBP is run by the Energy Development Corporation (EDCL), a subsidiary of REG, without further EnDev support.

Starting with 2014, EnDev Rwanda provides financial incentives (as grants) to the private sector to overcome initial market barriers through its results-based financing scheme of **solar lighting and village grids**. Companies receive the incentives after delivering results, which are monitored and verified. The fund is managed by the local micro-finance institution Urwego Bank. EnDev provides technical backstopping for Urwego and monitors fund administration, while the bank is responsible for the implementation of the funding mechanism.



Construction of Musarara MHPP

Outcomes and Impacts

In the micro hydropower sector, the first three privately-owned micro hydropower plants in Rwanda, with respective capacities of 96 kW, 500 kW and 438 kW, have been connected to the national electricity grid, **providing electricity to around 17,000 people**. The project developers are either Rwandan companies or joint ventures between Rwandan and international companies. In 2016, EnDev prepared grant agreements for the financial support of four MHP plants (3 MW of total capacity). Commissioning of the four sites is expected for the end of 2018.

As a result of the private sector focus, 74% of the investment costs of the first three micro hydropower plants were raised from private capital through equity and commercial bank loans. Rwandan banks are increasingly financing private energy projects on a commercial basis and 15 private sector consortia participated in the latest tender in 2014, most of them involving international investors.

With the promotion of small solar, more than 15,000 people have gained access to modern lighting energy. The solar component is increasingly successful, having distributed around 5,000 systems, attracting ever more solar companies. EnDev has **developed a national solar monitoring database** in partnership with other organisations involved in the solar market.

Lessons Learnt & Outlook

EnDev Rwanda published a report outlining the lessons learnt in more than eight years of promoting private sector participation in micro-hydropower development. After briefly discussing the benefits and challenges of the private sector focus, the report considers the experience during project development (the selection process of a private investor, the requirements of technical, business and policy advice), as well as during project implementation and operation. One critical point that EnDev Rwanda demonstrated through its approach is **the importance of ownership**: “An owner of the plant who acquired commercial debt to finance it has excellent reasons to maintain and operate it well. Indeed, the private plants have far better performance statistics in terms of plant availability and plant utilisation factor than comparable-sized public plants.”

The RBF village grid component aims to provide new energy access, market development and job creation. In Rwanda, the first call for mini-grids was published in 2014. Many local companies (mainly hydropower) expressed their interest. After nine months of bilateral feedback to improve project proposals, EnDev offered four full-day workshops in 2015, with optional additional bilateral coaching sessions and projects visits. From its by now five calls and 23 village grids supported, EnDev learnt that **RBF requires experience** of companies to properly **manage the required pre-financing**, or, if this experience is lacking, capacity building is key.

References

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