Ex-post Evaluation of EnDev Ghana – productive use of energy (PUE)

Executive summary

From 2006 – 2019, Energising Development (EnDev) aimed to increase access to modern energy services in Ghana to improve the productivity of small enterprises, small-scale agriculture and agro-processing. This project was implemented by Gesellschaft für Internationale Zusammenarbeit (GIZ) and SNV.
This evaluation builds on 2 exit studies carried out in 2019.

EnDev contracted Edburgh consultants and Danish Energy Management to conduct an independent ex-post evaluation of EnDev Ghana. The main evaluation questions were:

1) What influence did EnDev's intervention have on sector development?
2) To what extent are local institutions ready (and have the capacity) to take over and contribute to developing a sustainable energy market?
3) What are the lessons learnt?

Ex-post studies are carried out at least 2 years after a project has been phased out. This desk-based evaluation was carried out between November 2022 and March 2023. The evaluation is based on an analysis of 26 relevant reports and studies, and 15 interviews with important stakeholders. The report is based on absolute numbers of sales on country level. On global level, EnDev applies so called monitoring factors for attribution, additionally and sustainability and reports in adjusted numbers of people reached.

Background

EnDev Ghana promoted the productive use of energy (PUE) via 4 components. Component 1 supported 18 light industrial zones (LIZ). The aim was to improve small enterprises' business environment and performance by providing a service package. This included an improved electricity supply, road access, water supply and sanitary facilities, and business and management training. Components 2 and 3 supported irrigation via electric pumps using grid electricity or a solar-powered irrigation system. GIZ implemented components 1 to 3. Component 4 supported improved cookstoves for food-processing of gari, a staple food in West Africa made from fermented cassava. SNV implemented this component.

EnDev Ghana	
Project period	2006 - 2019
Budget	EUR 5,675,000

Project results:

- Provided 462 grid connections for agricultural farm irrigation systems.
- Popularised solar-powered irrigation systems. Raised awareness among farmers and suppliers and installed 71 solar irrigation systems.
- Installed 340 PUE stoves for gari production.
- Contributed to a focus on stoves for productive use in government policies.
- Strengthened business associations via well-defined leadership structures and management systems.

Supply-side observations

EnDev has contributed to a growing solar-powered irrigation market. This project component has had the most visible longer-term result and has relied the least on government and local authorities' actions.
The infrastructure constructed in the LIZs and other services like sanitary facilities are still working, and more and more small enterprises within the LIZs are using them. The industrial associations that EnDev Ghana supported are actively managing and maintaining these services. EnDev Ghana's interventions showed distribution utilities and farmers the potential of PUE for irrigation based on grid electricity. However, utilities generally view and engage with the agricultural sector as they did before the project's interventions. They are still reluctant to have smaller farmers as clients due to beliefs that the farmers will not pay them regularly.
EnDev Ghana has made the biggest impact in the off-grid irrigation market. In this market, companies have continued activities and built on the project's experiences with support from the GIZ programme Green People's Energy (GBE). Regulation has also improved in this market, which is now more mature than before EnDev Ghana's interventions. In regards to improved cookstoves for artisanal agro-processing, there is no well-developed market in Ghana. The stoves promoted by EnDev Ghana are no longer sold.

Demand-side observations

EnDev Ghana applied a holistic approach to the productive use of energy. This approach focused on the technology and supporting end users in how best to use it. End users are still benefitting from this support.

EnDev Ghana's holistic support for LIZ development in Ghana has contributed to the economic activities of the industries that moved to these LIZs. The impact that these industries have observed depends on their collaboration with governing authorities, particularly local government. There are still LIZ areas that industries have not moved to because of issues unrelated to the project. EnDev Ghana also applied a holistic approach to support farmers via components 2 and 3. This included training farmers on how to optimise irrigation in their farming practices. This training has been well received, and farmers still use what they learned in their current practices. There is an increased demand from farmers for grid connections for irrigation. These connections are still being used when regular payment options are available for farmers. With support from GBE, farmers in off-grid areas can also access PUE. However, for small-scale farmers, access to on-grid and off-grid electricity for irrigation remains a financial challenge. There is not sufficient demand to build a market for stoves for productive use in the artisanal sector. Commercially, there is little benefit to using an improved stove as fuelwood is cheap. Also, the profit margins of artisanal producers are low, making investments in an improved stove difficult. The PUE stoves are, therefore, unlikely to generate sufficient demand for the improved cookstove market to become commercially viable.

Enabling environment observations

EnDev Ghana has made significant contributions to policy on the productive use of energy by putting PUE on the national agenda and strengthening the national alliance for clean cookstoves.

Productive use of energy has been a priority in the Ghanese electricity sector for decades. EnDev Ghana contributed to national-level policy developments through close collaboration with the Energy Commission. This helped increase the commission's attention to PUE and led to stronger interest from financial institutes. However, challenges remain in implementing rural electricity programmes, where PUE requires better distribution grids and transformers. The results of the project's holistic approach are still visible in Ghana and can serve as inspiration if political commitment and financing increase in the future.

Farmers are still benefitting from the training they received, and, in general, the management of the LIZ infrastructure has continued following the principles introduced by EnDev Ghana. In regards to PUE for cooking energy, government programmes tend to focus on households. EnDev Ghana has been a catalyst for including productive use in these government programmes and for initiatives from other development partners such as USAID. The support to the Ghana Alliance for Clean Cookstoves (GHACCO) has been the most visible long-term result of this component. This alliance is an important stakeholder in the Ghanese sector and the West African sub-region. SNV's support after EnDev Ghana's exit has also contributed to this result.

Conclusions

EnDev Ghana focused on increasing energy access for productive use in 4 areas:

1. Small enterprises in light industrial zones;
2. Irrigation using grid-electricity;
3. Irrigation using off-grid solar systems; and
4. Improved cookstoves for artisinal food-processing of Gari.

Of these 4 areas, EnDev Ghana had the greatest impact in the off-grid irrigation market. In this market, EnDev Ghana showcased approaches and raised awareness among farmers and suppliers. This market is currently supported by the GIZ-managed GBE programme. This programme builds on EnDev Ghana's experiences and is facilitating continued growth of this market. Overall, the project has led to strengthened and better-organised business associations. These associations continue to function well and have benefitted from EnDev's holistic approach to access to productive use of energy in Ghana.