

Case 2: Connecting capacities – Using public private partnerships to disseminate biogas technology

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Summary

SNV has been designing, developing and supporting the National Domestic Biogas Programme (NDBP) since its introduction to Rwanda. NDBPs stated objective is to achieve commercial deployment of biogas technology. The development of a biogas market requires well-coordinated private-public business interactions at levels. This case study highlights how public-private partnership, within the context of a market approach, can lead to sustainable economic development and an improved business climate.

NDBP pilot phase

The programme started with a pilot phase in the first half of 2007, which sought to develop the private sector and employment in the biogas industry. Five districts were targeted and eight private companies received training. Training focused on biogas plant construction and biogas sector development including marketing, sales services and maintenance. Two local institutions, KIST/CITT¹ and ETO², were trained to be future training institutions.

The experiences of the pilot phase led to a modified approach to implementation, whereby farmers were asked to make a larger contribution toward biogas installation and NDBP provided less direct assistance to private companies.

NDBP implementation

Private sector development

SNV supported refresher trainings for all the technicians and masons of bio-digester construction companies (63 companies in total), in order to ensure fledgling companies were providing quality service through skilled labour. Training included:

- Basic technical skills concerning biodigester technology, construction, supervision, quality control and maintenance
- Market skills, such as subsidy and credit processes, after sale service and promotion

Private companies were offered an office in a district of their choice and were responsible for attracting their own clients. The objective was to develop a strong private sector, independent of the NDBP. Companies started marketing bio-digesters, initiated promotion workshops and started drawing farmers into the programme. The companies also successfully developed their own appliance market. Previously, there was only one large supplier of appliances importing from China. To increase competition, the four Rwandan manufacturers were motivated to start appliance production.

The programme also set up links between private biogas companies and CIMERWA (Cimenterie Du Rwanda), the only cement industry in Rwanda. This alliance agreed to lower the cost of cement for farmers willing to build biogas digesters, an important contribution to encouraging bio-digester uptake, as cement in Rwanda is very expensive and its price on the market is unstable. Eight cement suppliers in different districts participate under the CIMERWA agreement.

Other private sector contributors to the programme, include SONATUBE, responsible for supplying gas pipes, who agreed to manufacture the pipes for the programme at a reduced cost to the farmer, and Banque Populaire du Rwanda (BPR), one of the largest banks in Rwanda, who will provide microcredit loans to farmers wanting to install a biogas plant.

¹ KIST/CITT – Kigali Institute of Science and Technology/Centre for Innovation and Technology Transfer

² ETO Gitarama is a secondary technical school

At all levels the programme, strict standards and procedures are in place to ensure quality and farmer satisfaction.

Private - Public partnerships

In addition to private sector involvement, the participation of local authorities' and their collaboration with the private sector is important to the success of the programme. The administrative division of Rwanda is comprised of five provinces, 30 districts and 416 sectors. Biogas sensitisation was aimed at district and sector levels.

The districts

As an introduction to the programme, NDBP conducted workshops in six districts (four in the Northern Province, two in the Southern Province) and the Kigali City Council. In each workshop, the district mayors, sector executive secretaries and agronomists participated, resulting in district level ownership of the programme. The number of digesters to be built each year are now reflected in the performance contract and the District are more active in sensitisation, this in direct support to companies.

The sectors

As the sectors are the smallest administrative entity, their support is crucial. The programme has involved executive secretaries and the agriculture representative of each sector in marketing, farmer registration, quality control, funds release, credit acquisition and after sale services. Sector authorities work in close collaboration with the private companies and act as supervisors.

Public institutions and private sector

Education and research institutions are needed to provide a research link to biogas technology. The programme enlisted the following institutions:

Tumba College of Technology: Will be responsible for training private companies(Training of masons and supervisors) and offering refresher courses to them. Preliminary contacts have been drawn up, but an agreement has yet to be reached.

The Institute of Agriculture and Husbandry/ISAE: Assists the programme in research related to Bio-slurry use. They will provide training to private companies in order to help them advise farmers on optimal usage of a bio-slurry. SNV, building on its experiences with bio-slurry in Asia, has played a role in the capacity development of this institution.

IRST³: Assists the programme with research on latrines/toilets, thus contributing to improved sanitation.

KIST/CITT⁴: Will manufacture stoves in an attempt to motivate more privately owned stove manufacturers to get their knowledge from CITT expertise.

SNV's support for public-private partnership in the biogas sector

SNV activities to support public-private partnerships ranged from technical and business development advice to support for trainings(strengthening private companies and linking them to Local entities for a common target). SNV helped to design and implement the NDBP and helped organise and facilitate sensitisation workshops. Networking and advocacy made up another large part of SNV's work promoting strategic linkages for sustainable and successful programme development.

Outcome

Collaboration between the private and public sectors have resulted in:

- A solid foundation for achieving the goals of the programme

³ Institut de recherche scientifique et technologique

⁴ Kigali Institute of Science and Technology/Center for Innovation and Technology Transfer

- Yearly District performance contracts reflects targets for bio-digester construction, which means that it would be part of the products delivered by the District at the end of the period
- The development of a sustainable market for biogas related products and services
- Reduced role of the programme, as a public institution, in the development of the market
- Long-term demand for bio-digesters.

Lessons learned

- Successful market development requires well coordinated private-public partnership
- NDBP should encourage and support new businesses entering the biogas sector.
- Good theoretical and practical training for masons and technicians, including frequent refresher courses, is a prerequisite to a quality plant.
- NDBP can facilitate interactions between big industries and private companies to improve access to products. Negotiated reductions of material costs increases farmers' access to biogas
- To promote private sector development and reduce the cost to farmers, the government should exempt biogas businesses and appliance imports from taxes as one of the technologies contributing to environmental sustainability.
- Collaboration with districts, existing institutions and NGOs at different levels is fundamental for the development of the programme;
- District performance contracts could contribute to the success of the programme by including targets for bio-digester construction, or number of households using biogas.
- Focal points at sector level are important for facilitating the up-scaling of the programme. NDBP representatives at the district level to coordinate all actions would be ideal.
- We observed that farmers trust sector authorities more than private companies, it is, therefore, important to involve them from the start.
- Involving public institutions in the training of private companies increases programme sustainability and technology transfer.
- Encouraging local research institutions to participate in research and development is valuable for technological innovations and development.
- Quality control and after-sales services (offered by the private companies with supervision from the biogas programme and local authorities), including guarantees, are important to the smooth functioning of the programme.

Challenges and opportunities

Developing strong public-private partnerships face challenges at various levels:

Programme:

- Lengthy payment procedures to private companies
- Delay of credit availability to farmers
- Lack of human resources for marketing and quality control
- Import taxes keep prices high

The private companies:

- Limited number of private companies trained
- Strategy missing to reduce company drop out rates
- Difficulty of maintaining quality standards and good workmanship
- More capacity to secure financial resources needed
- Adequate financial support through loans needs to be developed
- Low prices of Chinese appliances harming competitiveness of local manufacturers

The public sector:

- Lack of coordination and involvement at district level

- Lack of ownership
- Limited staff involved

Other challenges are related to the fluctuation of prices of construction materials, increasing the financial contribution required from farmers, and reducing their access to biogas products.

Opportunities for public-private partnerships also exist:

- The government strongly supports and encourages renewable energy solutions
- The National Domestic Biogas Programme has the capacity to develop a sustainable biogas sector in Rwanda
- With 15,000 biogas plants planned and a subsidy made available to farmers to construct them, the potential for companies and parallel appliance manufacturers and suppliers to make profits in the sector is high.
- Districts are willing to insert biogas targets in their performance contracts as a way of enforcing the wood cutting prohibition policy
- Public institutions, especially, institutions of higher learning and research are poised to deliver tangible results and rural development-oriented solutions to the energy problem
- Farmers are eager to invest in biogas plants due to the many economic, social, health, and environmental benefits associated with it

2010 update: The approach described in the case above, has contributed to the development of the biogas program. As of September 2010, more than 700 biogas plants have been installed throughout the country. There are 70 biogas companies selling bio-digester,, with at least two biogas companies per district (30 districts in all). All districts and sectors are closely monitoring and supporting the activities of biogas companies. Additionally, we find more public institutions involved in promotion, research and training, thereby supporting directly private sector development in the biogas sector. The role of other private sector and civil society actors has also steadily grown. For example, the Banque Populaire du Rwanda financially supports investments in biogas through a microfinancing loan scheme, while a growing number of NGOs are active in biogas promotion.