## Purpose

The NAMA aims to promote the use of biogas technology as a low cost greenhouse gas mitigation technology through the development of a commercial small-scale biogas sector in Kenya. **The NAMA will install 60,000 bio-digesters over six years through a coordinated market development approach** that reduces financing barriers and improves the reliability of the technology.

## Description

The NAMA proposes **four** instruments that will increase access to biogas systems. These systems use animal and human waste to generate biogas (methane gas), a clean and renewable fuel that is used for cooking and lighting at the household level.

**Two** instruments will help farming households, of which about 50 per cent are headed by women, to purchase biogas digester systems:

- **Biogas Credit Fund** – a revolving fund that provides affordable credit for farming households to purchase biogas systems. The fund will help purchasers with the upfront investment costs and help financial institutions overcome the perception of high risks in this sector.

- **Results Based Investment Discount** – a subsidy given to households to offset the high front-end purchase cost. This instrument will enforce high construction standards and the proper use of installed biogas because the subsidy payments will only be made if the installed bio-digesters meet quality standards.

The other **two** instruments will strengthen the commercial viability of the sector by building the capacity of companies that construct biogas systems and other private sector players that engage in monitoring, extension services, training and marketing:

- **Innovation Fund** – a fund accessible to the private sector that will stimulate new technology design and market approaches. The fund will promote research and development of new products, including new biogas appliances and new distribution approaches.

- **Functionality mechanism** – a customer service centre that will maintain a company grading system to track the quality of service provided by biogas installers, and a customer database to track the satisfaction of purchasers. The service centre will also build private sector capacity through training programmes, marketing awareness programmes and extension services.

## Transformational Impact

The NAMA will help biogas become a reputable mainstream renewable energy technology that improves access to low-carbon energy. It will encourage scale-up of the development, marketing and installation of biogas digesters, **establishing biogas as a robust mainstream technology that is accessible to farming households**. The installation of 60,000 bio-digesters by 2022 will be a four-fold increase from the 17,000 bio-digesters installed in 2015. This will result in 300,000 beneficiaries at the household level. The biogas credit fund will enable the installation of an additional 60,000 bio-digesters up to 2030.

Over 80 per cent of Kenyans use biomass as their primary source of energy, contributing to 22 million tonnes of greenhouse gas emissions per year. The NAMA will introduce a systematic and structural shift to biogas, **transforming the fuel used for cooking by moving households away from wood fuel** by: increasing awareness of biogas; providing loan products to overcome high up-front investment costs; improving quality control; and building technical capacity of technology providers. A vibrant biogas sector will be established, with quality assured through construction standards and after sales service. Increased innovation will result in improved biogas systems and appliances for households.

Biogas is a renewable energy technology that is a sustainable substitute for traditional biomass fuel and leads to significant greenhouse gas emission reductions. Successful national biogas programmes have been stimulated by strong national and international support. This NAMA would be the first of such programmes in Africa and be a model for other countries.
Estimated Greenhouse Gas Emission Reductions

Installation of 60,000 bio-digesters will reduce greenhouse gas emissions by 1,600 kilotonnes of carbon dioxide equivalent over six years.

Sustainable Development Impacts

The NAMA provides significant sustainable development co-benefits including:

- **Increased agricultural production** – as a result of using bio-slurry, which is the high quality organic fertilizer produced as a by-product of the biogas digestion process. Farmers using bio-slurry increase harvests by up to 30 per cent and improve soil conditions.

- **Improved family health and sanitation** – by providing proper disposal for human and animal waste. Approximately 200,000 women and children will benefit from reduced exposure to indoor air pollution.

- **Increased employment** – by creating about 1,050 direct jobs in marketing, construction and after sales service in rural areas. Indirect jobs will be created in the supply of construction materials and appliances.

- **Environmental benefits** – proper management of waste will decrease surface water pollution, and the reduced reliance on wood fuel will reduce deforestation by an estimated 54,000 hectares.

- **Household economic benefits** – with a lifetime of up to two decades, a bio-digester contributes to household savings through reduced energy costs and increased income through improved agricultural yields. The estimated income increase is about US$550 a year for each household.

Required Support

The NAMA requires an investment of about US$18 million. The NAMA will attract additional investment of approximately US$74 million from households, government, financial institutions and the private sector. Financial institutions are expected to provide at least US$6.5 million in co-financing to the credit line.

Partners

- Ministry of Environment, Natural Resources and Regional Development Authorities – oversight of project implementation.
- SNV Netherlands Development Organisation – delivery of technical and financial components of the project.
- Hivos – gender mainstreaming and carbon credits.
- Kenya National Farmers Federation – support to biogas constructors and farmer training.
- Micro Enterprise Support Programme Trust – administration of credit line.
- Kenya Climate Innovation Centre – administration of innovation fund.

International Support

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