Promotion of Bio slurry for Increased Production in Organic Farming in Tanzania

Introduction to Tanzania Domestic Biogas Programme and Bioslurry Use
About SNV

- Netherlands based non-profit, international development organisation, with >40 years of on the ground experience.
- Local presence: >800 professionals in 36 developing countries in Africa, Asia and Latin America.
- Capacity development services to local public and private organisations increasing access to basic services, income and employment.

Effectiveness
“empowering local actors”

Connection
“leveraging critical mass”

Scalability
“seeking a systems change”

Market-Based Solutions to Eliminate Poverty
What we do

3 sectors
- Agriculture
- Renewable Energy
- Water, Sanitation and Hygiene

3 roles
- Advisory services
- Knowledge networking
- Evidence-based advocacy

4 key success factors
- Inclusive development
- Systemic change
- Local ownership
- Contextualized solutions
SNV and domestic biogas programs

Biofuels  Domestic biogas
Africa Biogas Partnership Programme

To improve living conditions of households in six African countries, through the multiple benefits of the introduction of 70,550 domestic biogas digesters for cooking and lighting and lay the foundations for domestic biogas programmes in three additional countries.

Main funding: DGIS    Fund management: Hivos    TA: SNV
Tanzania Domestic Biogas Programme (TDBP)
Tanzania Domestic Biogas Programme (TDBP)

Progress so far:

• > 6,000 digesters constructed = > 35,000 beneficiaries. 2,409 digesters constructed in 2012 only. Target for 2013: 3,258.
• > 50 Biogas Construction Enterprises (BCEs) operational, accounting for 78% of total digester construction (2012).
• Implementation structure with local partners has been instrumental in achieving the targets.
• Donor strategy evolving towards Results Based Financing and subsidy reduction - currently acting as promotion incentive.
• Moving towards increased private sector engagement and facilitating access to credit (MFIs/SACCOs) for further scaling.
• Biogas technology has proven to be a good alternative for dairy farmers to have access to clean energy, improved productivity and increased income.
What is Domestic Biogas Technology?

- Design: fixed dome (4-13m³)-MCD
- Local materials & resources
- Feeding: livestock manure & human excreta (> 20 kg daily)
- Investment cost Tanzania: USD 400-600
- Life: > 20 years
- Gas use: cooking & lighting
- Bio-slurry: organic fertiliser
Multiple Benefits of Domestic Biogas Plants

- Environment
- Health & sanitation
- Agriculture
- Energy
- Economy
Clean cooking environment

Cooking energy

Lighting

Production (bioslurry)
Innovative farming leading to increased yields and economic returns of the HH
What is Bio-slurry?

- Anaerobic decomposed organic material
- The residue of the fermentation comes out as sludge which is known as “digested bio-slurry” & nutritional value is greatly improved if urine can also be collected in the digester
- Bio-slurry discharged from the reactor retains all nutrients originally present in the feeding material which makes bio-slurry a potential organic fertilizer.
- Provides a viable solution to nutrient depletion of many agricultural soils in developing countries.
- Bio-slurry boosts agri- and horticultural production and will improve productivity of fish rearing
Management of Bio slurry
Preservation of Bio slurry

- Spread it under shade on the flat surface and dry for 3-4 days depending on weather.
- Preserve it in bags/drums in a dry place for future use.
- Pile the dry slurry under shade
- Use it as input material for composting
Advantages of Bio slurry

• Being fully fermented, it is odorless and does not attract flies.
• It repels termites and pests that are attracted to raw dung.
• Bio-slurry reduces weed growth (proved to reduce weed growth by up to 50%).
• Bio-slurry is an excellent soil conditioner, adds humus, and enhances the soil’s capacity to retain water.
• Bio-slurry is pathogen-free. The fermentation of dung in the reactor kills organisms causing plant disease.
• Soil fertility and structure improved through use of bioslurry as an organic fertilizer resulting in improved crop yields and reduced erosion.
• Major plant nutrients (such as NPK) are preserved during fermentation process & plants can immediately absorb these nutrients.
• After being stored for a few days or mixed in a 1:1 composition with water, bio-slurry can be applied directly to vegetables or fruit crops around the household.
Advantages of bio-slurry

- Bio-slurry application along with installation of regular irrigation channels is beneficial for the growth of vegetables especially root vegetables, paddy, sugarcane, fruit trees, and nursery saplings.
- Mushroom cultivations also benefit greatly from bio-slurry application.
- Spraying bio-slurry (with or without a little addition of pesticide) can effectively control red spiders and aphids attacking vegetables, wheat, and cotton.
- The effect of bio-slurry with 15-20% pesticide in pest-control is proven to produce the same results as using pure pesticides.
- Dressing of barley seeds with bio-slurry is an extremely effective way to control the barley yellow mosaic virus, which is one of the most destructive diseases in barley growing areas.
- Biogas process is carbon neutral, thus contributing to the global reduction of greenhouse gas emissions for better care of Mother Nature. Utilizing bio-slurry is the next step towards turning waste into benefits.
Different ways of Using Bio slurry
Composting
Vegetable garden
Pest control in Coffee production
Feeding materials for fish farming and other livestock

Dried digested slurry has great potential to be used as feed supplement for cattle, pigs, poultry, and fish.
• Capacity strengthening to build up the farmers extension agents
• 5 groups of 15-18 farmers each.
• Strategic plan and development-Green Entrepreneurship round table meetings
  ▪ Development of various promotion/education materials (Brochures, leaflets, Bio slurry training manuals, posters and banners) to increase knowledge and understanding among stakeholders.
  ▪ Partnership with Tanzania Organic agriculture Movement (TOAM)
  ▪ Partnership with Tutunze Kahawa Ltd-for promotion of Coffee
  ▪ Collaboration with SUA-Animal Science Department
  ▪ 12 Model villages for Conservation Agriculture in Njombe and Dodoma regions
Challenges

- Low awareness and acceptance of this type of manure among biogas users
- **Slow adoption pace** by other stakeholders.
- **Lack of Bio slurry policy** - no support from Govt extension department
- **Bio-slurry use is a new ground.** No research results which underpin the impact of bioslurry in various aspects e.g. soil analysis
- **The attitude towards** business/entrepreneurships in bioslurry is not sharp
- **Toilet connection** aspect is not in favor as majority of users are not interested.
Involvement and engagement of other stakeholders in bio slurry takes time and sometimes need money.

The research results took long time to come out.

Most of the farmers have not realized the importance of bio-slurry because the initial objective to them was energy for cooking.
• To strengthen collaborations and invite more organization in promotion and fundraising for Biogas for Bio slurry (B-B)

• To motivate F-F extension to help in spreading the message

• Establish collaboration with market networks to establish commercial viable market of organic products

• Promote organic farming research and provide more information on the effectiveness of organic fertilizer and proofs on how it can play part in agriculture production.
AHSANTE SANA  

Edith Banzi  
Ebanzi @snvworld.org  
Juliana Mmbaga  
mmbagajuliana@yahoo.com  

THANK YOU  

Advisor Renewable Energy, Arusha  
Extension and Training Officer-TDBP-Arusha  

Bio slurry for increased productivity  

SNV Netherlands Development Organisation  
Chole Road Plot 1124  
P.O. Box 3941  
Dar es Salaam, Tanzania  
Tel +255-(0)22260340  
www.snvworld.org  

For more information, please contact:  
Tanzania Domestic Biogas Program (TDBP)  
Lehada Cyprian Shila, TDBP Coordinator  
Tel. +255 27 254 92 14 / Mob. +255 78 95 55 722  
info@biogas-tanzania.org  
http://biogas-tanzania.org/