Future Challenges for Biogas Systems in Sri Lanka

Technical, Financial and Marketing Aspects

By

Namiz Musafer

Director

Janathakshan

Colombo – Sri Lanka

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Triple Benefits of Biogas Systems

- Environment
- Agriculture
- Energy

Historical Trends

  - Economy
  - Protect sectors

Sustainability Pillars

Economic Sustainability

- Employment
- Local money circulation
- Prevent foreign X-change drain
- Increased disposable income
- Chemical replacement
- Protect local industries

Environmental Sustainability

- Waste disposal
- Waste management (BOD, COD : Bio/Chemical Oxygen Demand)(EPL)
- Indoor Air Quality
- Organic soil
- Prevent chemicals (air, water, soil)
- Bio-diversity (indigenous crops)

Social Sustainability

- Pride (environmental friendly)
- Support idea (Acceptance)
- Diseases (CKD)
- Use of own / local resources
- Smoke & soot free

Types of Biogas Systems in Sri Lanka

- Fixed dome continuous flow (Chinese)
- Floating gas holder continuous flow (Indian)
- Batch digester with floating gas holder
- Compact
- Semi-plug flow
- Balloon type (experimental)

Total of 7,800 biogas systems

Types of Biogas Systems in Sri Lanka

- Domestic
- Farm
- Institutional
- Industrial

Only 1 grid connected biogas system is in pipeline

- Animal waste
- Farm & Field waste
- Toilet waste
- Food waste
- Garden waste
- MSW
- Industrial waste

Biogas Energy Applications in Sri Lanka

- Cooking
- Lighting
- Water pumping
- Power generation
- Ironing / Refrigeration (long ago)
- Vehicle (Research)

Policy Challenges – Biogas in Sri Lanka

- Lower overall potential (700 MW?)(Energy Mix)
- Dispersed resources - collection
- Plants size – Economies of scale
- Power struggles – CEB, SEA, PUC
- Project developers' hidden interests (prime land)
- Coal dominance, RE-Solar, wind prominence
- Energy Vs Electricity

Attractive feed-in tariff

Marketing Challenges – Biogas in Sri Lanka

- Tangible but inbuilt (partial invisibility)
- Market size
- Site specificity
- Promotion
- Package with triple benefits
- Branding
- Warrantees and after sales services

Social Challenges – Biogas in Sri Lanka

- Dung or waste to cook
- Poor waste management habits
- Sorting at source
- Worker's social status
- Appearance / aesthetics
- Smell
- Cumbersome

Technical Challenges – Biogas in Sri Lanka

- Standards & Quality Assurance
- Faster reactors
- Feed-in material composition
- Equipment and appliances
- Design, Construction, O & M Failures
- Testing facilities & equipment
- Scientific information (NPK, Biogas Yield)

Financing Challenges – Biogas in Sri Lanka

- Donor mentality
- Historically subsidy driven
- Issues with ROI
- Collaterals (Project assets)
- Per-facility costs
- Lesser cash-inflow (reduced expenses)
- Plant reliability, poor reputation

Human Resource Challenges – Biogas in Sri Lanka

- Awareness
- Education (School, University)
- Vocational & Technical skills
- R & D
- Innovations and Inventions
- Stagnation
- Irresponsibility & attitudes
- Competent persons

Challenges for On-Grid Biogas Systems in Sri Lanka

- Some of what were listed above
- Good pilot by government (hydro, wind, solar)
- Technology transfer (fast reactors, sorting, Ø)
- Sizable feed-in material
- Holistic integrated approach (triple benefits & multiple institutions)
- Political and professional will
- Struggles (LGA MSW, institutions)

THANK YOU

Namiz Musafer

namizm@gmail.com

+ 94 71 2748407